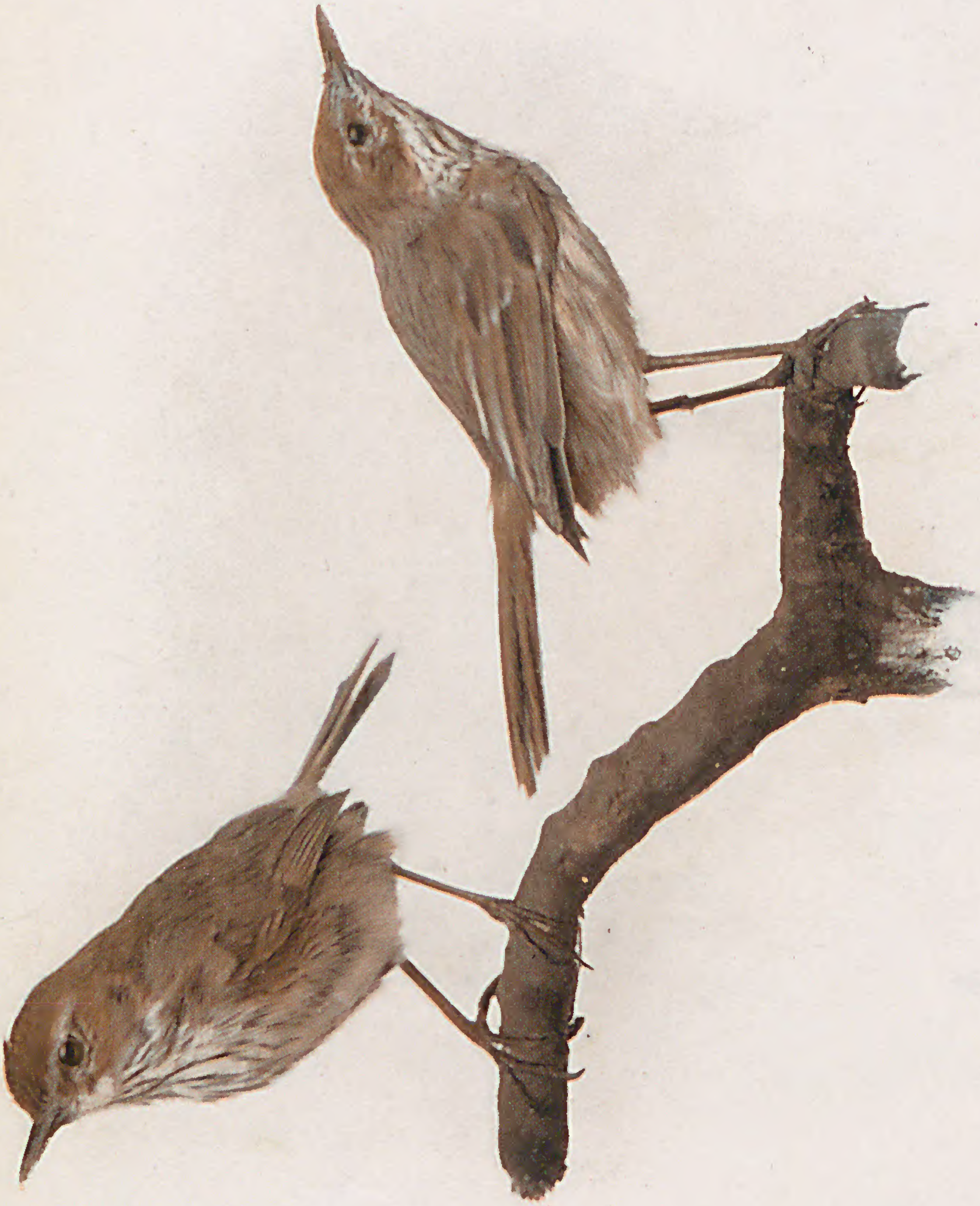
NATIONAL MUSEUM MELBOURNE

THE EMU, *Vol. XXIV.*

PLATE 43
(Frontispiece)



Rusty Field-Wren (*Calamanthus isabellinus*, North), $\frac{4}{5}$th nat. size.

The Emu

A Quarterly Magazine to popularize the Study and Protection of Native Birds and to record Results of Scientific Research in Ornithology.

VOL. XXIV.—1924-25.

Editor:
W. B. ALEXANDER, M.A., C.F.A.O.U.

Assistant Editor:
D. F. THOMSON, R.A.O.U.

Official Organ of the

Royal Australasian Ornithologists' Union

376 Flinders Street, MELBOURNE.

MELBOURNE:
KEATING-WOOD PTY. LTD., PRINTERS, 36 LONSDALE ST.

EUROPEAN AGENTS:
H. F. & G. WITHERBY, 326 HIGH HOLBORN, LONDON.
1925.

[illegible] MELBOURNE

CONTENTS *of* VOL. XXIV. 1924-25.

Page

Bird Protection, Central Queensland Native Birds Protection Association . 306

Burketown, North Queensland, Birds Observed at (A. E. Church) 290

Calamanthus, A Review of the Genus (Edwin Ashby) 44

Camera Craft .. 74, 147, 296

Cockatoo, Gang-gang, Nest of the (Frank Howe) . 67

Conference, R.A.O.U. 159

Congress and Camp-out of the R.A.O.U., Narrative of Proceedings of the 23rd (G. H. Barker) .. 208

Congress, R.A.O.U., 23rd Annual 166

Coomooboolaroo Station, Duaringa District, Queensland, A Review of the Bird Life on (Chas. A. Barnard and H. Greensill Barnard) 252

Coomooboolaroo, Visit to (W. B. Alexander) 236

Correspondence 70, 147

Ducks of South Eastern New South Wales, Wild (H. V. Edwards) 145

Eagle, The Way of an (D. W. Gaukrodger) 3

Economic Section 72

Field-Wren, Rusty, Notes on the (Edwin Ashby) 241

Forgotten Feathers 300

Franz Joseph Glacier, N.Z., Birds Seen Along the West Coast to the (Perrine Moncrieff) 61

Page

Globicera, Notes on Two Pigeons of the Genus (J. R. Kinghorn) 286

Greater Actæon Islands, South Tasmania, Notes on a Visit to the (Dr. W. W. Giblin) 131

Ground-Parrot, Notes on the (H. V. Edwards) .. 35

Ground-Parrot, The, in Eastern New South Wales (J. F. H. Gogerley) 32

Jervis Bay Birds, Some (H. Wolstenholme) .. 117

Kakapo, The, A Quaint Bird of New Zealand (Alec. F. O'Donoghue) . 142

Mungeranie, Central Australia, A Trip to (Dr. Brooke Nicholls) 45

Mutton-Birds of Phillip Island, Victoria, Observations on the (F. Lewis) 86

New South Wales Garden, Birds of a (H. V. Edwards) 282

North Keppell Island, Visit to (M. S. R. Sharland) 229

Notes .. .. 80, 119, 159.

Notes and Comments, 238, 312

Obituary 80, 310

Parrots, Golden-Shouldered and Hooded, Notes on the (A. S. Le Souef and J. R. Kinghorn) 1

Parrots, Seeking Rare (A. H. Chisholm) 25

Pigeon, Top-Knot, Early Breeding of the (J. F. H. Gogerley) 276

Contents of Vol. XXIV.—1924-25

Page

Pratincole, Australian, A Contribution on the Life Story of the (Dr. W. MacGillivray) 181

Queensland Congress and Camp-out, 1924, Notes on the Birds Observed during the (H. Wolstenholme), Parts I. and II. 230, 243

Reviews 77, 157, 309

Rockhampton Outings (C. L. Barrett) 217

Shearwater, Buller's, Discovery of a Breeding Place of, Poor Knight's Islands, N.Z. (R. A. Falla) 37

South-Western Queensland, A Spring Excursion into (Dr. W. MacGillivray), Parts I. and II. .. 13, 90

Steppes, Birds of the (Miss J. A. Fletcher) . 107

Stray Feathers .. 76, 85, 101, 144, 146, 149, 165, 242, 301

Tambourine Mountain, At (A. H. Chisholm) 237

Page

Tararuas, Birds of the (A. S. Wilkinson) 120

Tasmania, Some Rare Birds in (H. Stuart Dove) 280

Tumbarumba, N.S.W., The Avifauna around (E. C. Chisholm) 102

Upper Colo, N.S.W., Notes on a Trip to (J. R. Kinghorn) 134

Wairarapa Plains, Birds of the (Robt. H. D. Stidolph) 278

Warbler, Fairy, The, A Rediscovery (A. H. Chisholm) 161

Willis Island, Bird Notes from (J. Hogan, communicated by A. J. Campbell) 266

Wren, White-backed, *Malurus leuconotus*, Gould, Rediscovery of the (J. R. Kinghorn and Tom Iredale) 59

Yeppoon - Byfield Excursion, The (A. H. Chisholm) 221

Contents of Vol. XXIV. 1924-25

AUTHORS OF PAPERS—VOL. XXIV.

	Page
Alexander, W. B.	236
Ashby, Edwin	44, 241
Barnard, Chas. A.	252
Barker, G. H.	208
Barrett, C. L.	217
Chisholm, A. H.	25, 161, 221, 237
Chisholm, E. C.	102
Church, A. E.	290
Dove, H. Stuart	280
Edwards, H. V.	35, 145, 282
Falla, R. A.	37
Fletcher, Miss J. A.	107
Gaukrodger, D. W.	3
Giblin, Dr. W. W.	131
Gogerley, J. F. H.	32, 276
Hogan, J.	226
Howe, Frank	67
Iredale, Tom	59
Kinghorn, J. R.	1, 59, 134, 286
Le Souef, A. S.	1
Lewis, F.	86
MacGillivray, Dr. W.	13, 90, 181
Moncrieff, Perrine	61
Nicholls, Dr. Brooke	45
O'Donoghue, Alec. F.	142
Sharland, M. S. R.	229
Stidolph, Robert. H. D.	278
Wilkinson, A. S.	120
Wolstenholme, H.	117, 230, 243

NATIONAL MUSEUM MELBOURNE

Contents of Vol. XXIV.—1924-25

ILLUSTRATIONS VOL. XXIV.

The Hooded Parrot; The Golden-shouldered Parrot (coloured) . . . . plate 1

Nest of the Wedge-tailed Eagle . . . . page 4

Nest, Adult and Young of the Wedge-tailed Eagle . . . . . . plate 2

The Wedge-tailed Eagle with leafy twig . . . . plate 3

Adult Wedge-tail at Nest; Young Wedge-tailed Eagle . . . . plate 4

Nest and Eggs of Australian Dotterel; Nest and Eggs of the Gibber-bird; Nest of the Pied Honeyeater . . . . . . plate 5

Haunt of the Blue-faced Lorilet in a tropical Fig-tree; Entrance to the Nest of the Paradise Parrot in Mound of White Ants (*Termites*) . . . . plate 6

Nest of the Brush Bronzewing, Fraser Island, Queensland plate 7

The Haunt of the Ground-Parrot . . . . plate 8

Buller's Shearwater, Bird in Burrow; Egg Near Burrow . . plate 9

Eggs of Buller's Shearwater . . . . plate 10

Rose-breasted Cockatoos (Galahs) resting on a Sand-dune, Central Australia . . . . plate 11

Rose-breasted Galahs, at Mungeranie, Central Australia; Grey Teal on Lagoon, Mungeranie, Central Australia plate 12

Little or Short-billed Crows . . . . page 54

Nest of the Plum-headed Finch . . . . page 75

Red-capped Robin at Nest, containing Young Cuckoo . . . . plate 13

The Paradise Parrot (*Psephotus pulcherrimus*) (coloured) plate 14

Nest and Eggs of Australian Pratincole . . . . plate 15

Australian Pratincole, Nest and Eggs . . . . plate 16

Young Australian Pratincole, 10 days old . . . . plate 17

Site of Nest of Winking Owl . . . . plate 18

Type of Country on the Steppes, Tasmania . . . . plate 19

A Cider Tree (*Eucalyptus Gunnii*) . . . . plate 20

Mount Holdsworth, Tararua Mts., N.Z.; Camp at Donnelly's Flat, Tararua Mts., N.Z. . . . . plate 21

Tree at Upper Colo, containing over a Dozen Nests of the Orange-winged Sittella; Camp at Wheeny Creek . . plate 22

A Flight Picture of the Arctic Skua (*Stercorarius parasiticus*) . . . . plate 23

Fairy Warbler (*Gerygone flavida*, Ramsay) (coloured) . . plate 24

Fairy Bower Creek, Rockhampton—A Bird Sanctuary . . plate 25

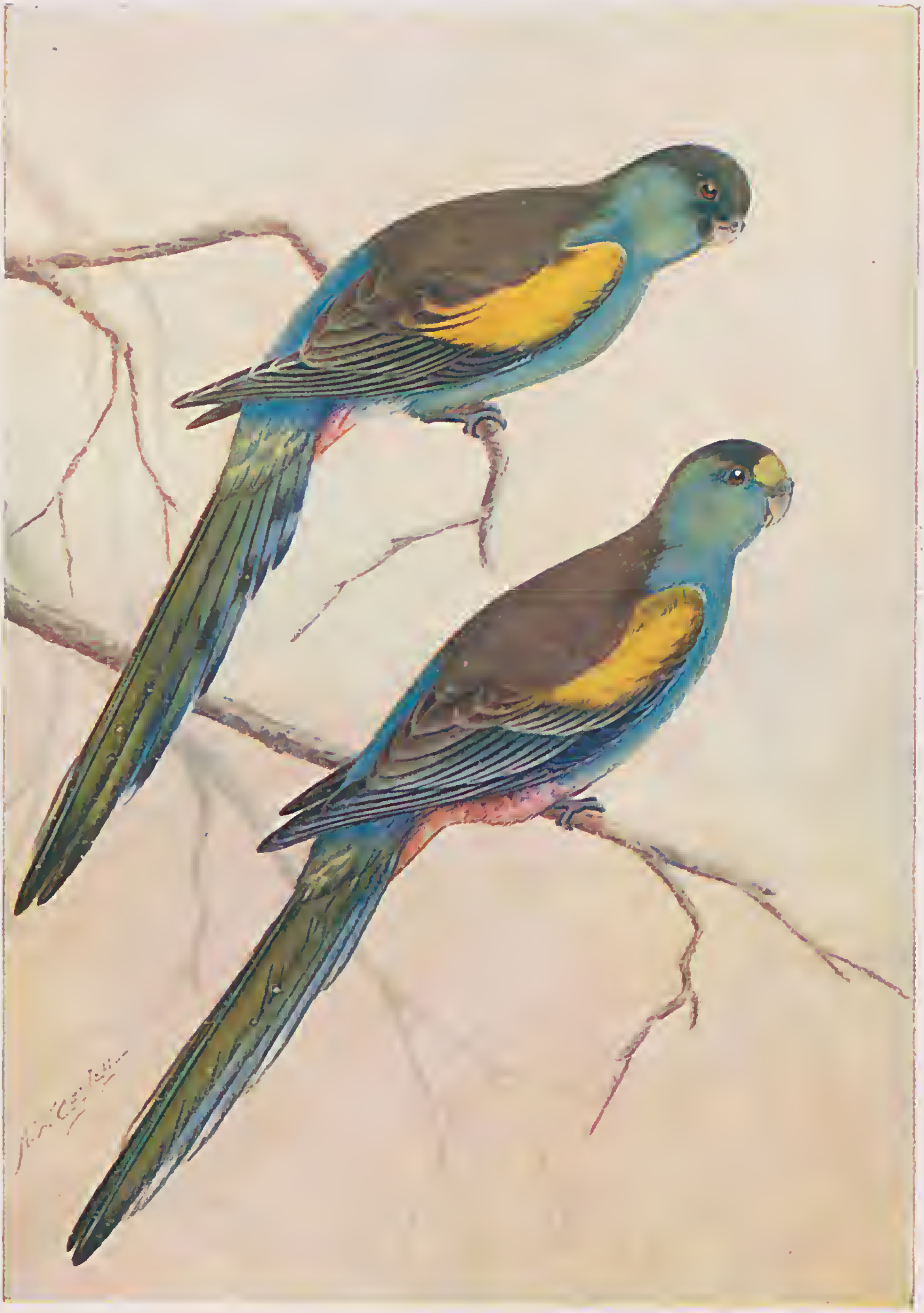
J. A. Leach, D.Sc., Hon. Mem. R.A.O.U., C.M.B.O.U., C.F.A.O.U., Retiring President . . . . plate 26

Group of Members of R.A.O.U. Entertained by the Mayor at Botanic Gardens, Rockhampton . . . . plate 27

Contents of Vol. XXIV.—1924-25

Members of R.A.O.U. in the Botanic Gardens, Rockhampton: Victoria Lagoon—A Bird Sancturay—in the Background . . . . plate 28
Members of R.A.O.U. Watching Water-fowl on the Bird Sanctuary Adjacent to the Rockhampton Botanic Gardens . . . . plate 29
Gracemere from the Homestead Garden . . . . plate 30
Gracemere Homestead . . . . plate 31
The Camp at Byfield . . . . plate 32
The Entrance to Olsen's Caves, Rockhampton . . . . plate 33
Goose Swamp, Fitzroy Vale, Rockhampton, with Berserker Ranges in the Distance: the Haunt of Pied Geese . . plate 34
Byfield Creek . . . . plate 35
At the Foot of the Giant Banyan Tree, Byfield . . . . plate 36
The Pride of Byfield—the Giant Banyan Tree; a Favourite haunt of Fruit Pigeons . . . . plate 37
Mount Parnassus, Byfield, seen in the Early Morning from Banana Plantation at the Head of Polka Creek . . . . plate 38
Nesting-mound of Scrub Fowl (*Megapodius reinwardt*) at Byfield . . . . plate 39
Nest of Red-crowned Pigeon (*Ptilonopus regina*) at Byfield plate 40
Nest of Brolga (*Megalornis rubicunda*) in McLaughlin's Swamp, Rockhampton—a bird sanctuary . . . . plate 41
Forest Country, Byfield, showing portion of Camp and Nesting Trees of Frogmouths, Blue-faced Honeyeaters and Forest Kingfishers . . . . plate 42
Rusty Field-Wren (*Calamanthus isabellinus*, North) . . . . plate 43
Yellow-breasted Shrike-Robin (Yellow Bob), with young . plate 50
Yellow-breasted Shrike-Robin (Yellow Bob), with young . plate 51
Yellow-breasted Shrike-Robin (Yellow Bob), with young . plate 52
Coomooboolaroo Homestead prior to 1903 . . . . plate 46
Grey Warbler (*Gerygone igata*) Feeding Young . . . . . . plate 48
Nest of Pheasant Coucal (*Centropus phasianinus*) containing an undersized egg . . . . plate 53
Young Double-banded Dotterel (*Charadrius bicinctus*) hiding amongst stones . . . . plate 49
Nesting Site of the White-eared Honeyeater (*Meliphaga leucotis*) in grass tussock in centre of picture, Thredbo River, N.S.W. . . . . plate 53
Nest and Egg of Topknot Pigeon (*Lophalaimus antarcticus*) *in situ* . . . . plate 49
Mr. H. G. Barnard climbing to Nest of Forest Kingfisher (*Halcyon macleayi*) at R.A.O.U. Camp, Byfield . . . . plate 44
Rufous Shrike Thrush (*Collurivincla megarhyncha*) on Nest at Yeppoon . . . . plate 45
Young Top-knot Pigeon (*Lopholaimus antarcticus*) near the Nest . . . . plate 47

NATIONAL MUSEUM MELBOURNE



Upper: The Hooded Parrot.
Lower: The Golden-shouldered Parrot.

The Emu

Official Organ of the Royal Australasian Ornithologists' Union

" Birds of a Feather."

Vol. XXIV.] 1st JULY, 1924. [Part 1

NATIONAL MUSEUM OF MELBOURNE

Notes on the Golden-Shouldered and Hooded Parrots.

By A. S. LE SOUEF, C.M.Z.S., Taronga Zoological Park, and
J. R. KINGHORN, C.M.Z.S., Australian Museum, Sydney.

In June, 1922, Taronga Park received through the courtesy of Mr. H. L. White ten young specimens of Golden-shouldered Parrots (*Psephotus chrysopterygius*) collected by Mr. W. McLennan at Coen, North Queensland.

These birds have now attained full plumage, and as they show some marked differences in external characters, colour, habits and call notes, from *P. dissimilis*, the Hooded Parrot (of which the Park possesses an extensive series from the Northern Territory), we think it advisable to record them here, thereby reducing the possibility of future mistakes.

For reference purposes we might state that Mathews, in his "Birds of Australia," vol. vi., p. 425, 1917, discussed the matter and placed *P. dissimilis* in the synonymy of *P. chrysopterygius*, though on page 430 of the same work he admitted *P. dissimilis* as a sub-species.

Later, H. L. White, in *The Emu*, xxii., 1922, p. 98 ;wrote: "A considerable amount of mystery was attached to this beautiful little Parrot, it being confused with the Hooded Parrot, *Psephotus dissimilis*, until W. McLennan set all doubts at rest by securing a pair on the Archer River, and sending them to Mathews, who confirmed Gould's identification made in 1857."

On comparing the two species, both with living specimens and skins in the Museum, we find that *P. chrysopterygius* is distinctly smaller and more slender than *P. dissimilis;* furthermore, it is much more active and perky, and has, in addition to the typical "cluk-cluk" note, a soft and pleasing whistle resembling "joee-joee," with an occasional "jeeo," neither of which have we heard uttered by *P. dissimilis*, the note of which is rather harsh.

In *P. chrysopterygius* the head feathers, especially those on the fore-part of the crown, can be raised in the form of a crest, while *P. dissimilis* shows no disposition to raise these feathers.

In referring to the remaining characters and colour markings, we have deemed it best to show them in tabular form, and in so doing have used those of the male only. In all we have examined eight pairs of the Golden-shouldered Parrot, and about twenty pairs of the Hooded Parrot.

	P. chrysopterygius.	*P. dissimilis.*
Crown of head to tip of tail	245 mm.	280 mm.
Crown of head to base of tail	90 mm.	110 mm.
Wing, from bend to tip of longest quill	115 mm.	124 mm.
Mid-toe and claw . .	19 mm.	24 mm.
Tarsus	12 mm.	15 mm.
Approximate width of streak on nape .	5 mm.	13-18 mm.
	A definite yellow band 5 mm. wide stretches across the forehead.	No yellow band; black hood extending down to the bill.
	Black cap, small, triangular, starting from above the eyes, and stretching backwards and inwards to the centre of the nape, where a narrow black streak extends backwards and joins the grey of the mantle.	Black cap large, starting from base of lower mandible, stretching below the eye towards the nape, covering the whole of the head. From the nape a broad band extends on to the mantle.
	Gold patch on wing small, ill-defined, starting a little behind the point of the shoulder, and confined practically to the lesser wing coverts, though some of the greater coverts may be tinged with yellowish green. Gold patch about 24 x 14 mm.	Gold patch on wing large, clearly defined, starting from the point of the shoulder and covering the lesser, median and greater wing coverts. Gold patch about 52 x 21 mm.
	The abdomen and under tail coverts red, the red feathers covering the tarsus.	The abdomen is greenish-blue, the under tail coverts alone being red, tarsus greenish. The female of North's type of *P. cucullatus* shows indistinct traces of red on lower abdomen and tarsus.
	Grey of the mantle and back light.	The grey of the mantle variable, but generally darker than in *P. chrysopterygius.*

The colour of the hood in both species is black; in no specimens have we seen the brown as described by Collett.

As to the distribution of the two species, the Golden-shouldered Parrot appears to be restricted to the central parts of North Queensland, and the Hooded Parrot to the Northern Territory.*

The descriptions of the types may be found as under:—

P. chrysopterygius, Gould, Proc. Zool. Soc., p. 220, 1857 (Jan. 1858).

P. dissimilis, Collett, Proc. Zool. Soc., p. 356, 1898.

The Way of an Eagle

By D. W. GAUKRODGER, R.A.O.U., Alice Downs,
Blackall, Queensland.

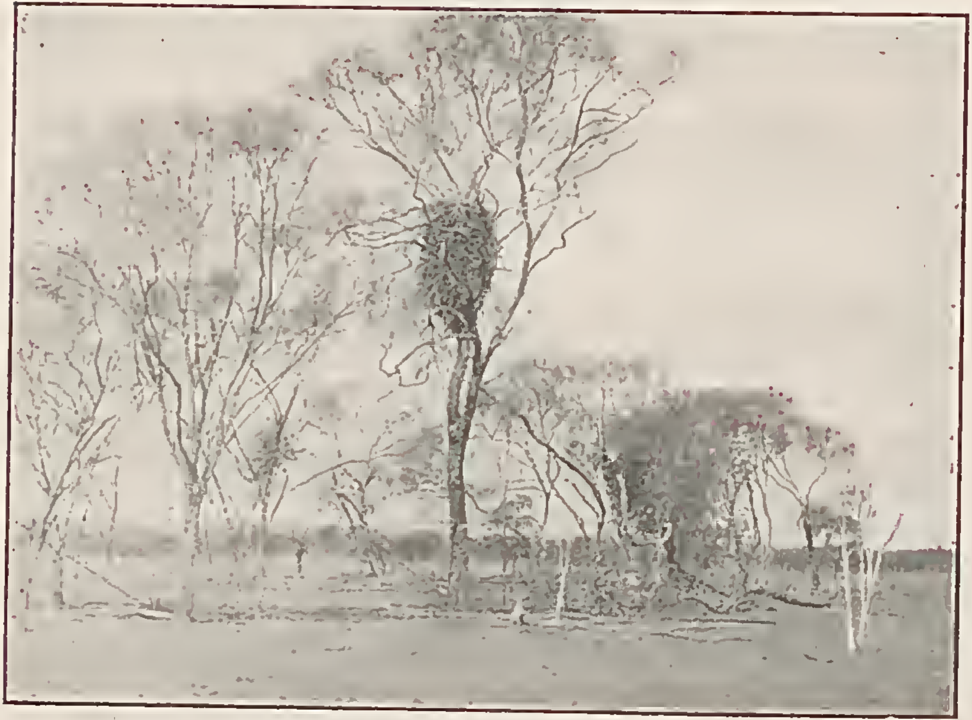
The Wedge-tailed Eagle (*Uroaetus audax*) is to be found almost all over Australia, and at certain periods of the year it is numerous in some districts. Yet, owing to its wild and shy nature, it is an extremely difficult subject to approach closely enough to make a thorough study of its habits. It was my privilege, however, to discover a nest comparatively easy of access, it being situated only twenty feet from the ground, in the heavy fork of a bloodwood tree, and within easy distance of the station homestead.

With a view to taking photographs of some of the bird's movements, and also of making notes on its habits, I determined to take some trouble to secure that end. Previous unsuccessful experiences satisfied me that it would be useless endeavouring to "worm" myself into the bird's confidence, as may be done by perseverance with almost every other Western Queensland bird, but that, instead, I would have to adopt a system of camouflage, both for my camera and for myself. To shoot one of these birds usually means the use of a rifle at a fairly long range, as seldom will its shyness admit of its remaining within gunshot. You may suddenly emerge from a thick scrub and surprise an Eagle at close quarters whilst it is feeding from the carcase of some animal. Otherwise, it can only be seen soaring at a great height; so that without taking advantage of its nesting-season, and being well "dug in," it would appear to be almost impossible to make any close study of this wild subject.

When I first discovered the nest under notice, it contained two fairly fresh-looking eggs (although they proved to be well advanced in incubation), so I decided not to be impetuous, but to visit the spot quietly each day, and set plans that I would put into operation when the chickens arrived. I did not altogether carry out this idea of a daily visit, as I found the bird very wild, and not then being conversant with "the way of an Eagle," I feared she (or he) might desert the eggs. So I contented myself with viewing the position through a pair of strong field-glasses from a far-away ridge, to satisfy myself the bird was still incubating, and with making only occasional visits to the nest to anticipate the day of hatching. On each of these visits I made a mental survey of the position of the nest in the tree, and also of the tree itself—assessing its suitability for attaching my camera in a favourable situation for distance and light. I noticed the natural advantage of the main side of the nest facing the morning sun, and observed that, from underneath the limb carrying the nest, another heavy branch projected. From there again, at a distance of 26 feet, was a smaller upright branch, which I could see would be a very suitable repose for "Sanderson" and its patient prototype "Dummy." (I may add that "Sanderson" is my half-plate camera, and "Dummy" a broken old Thornton-Pickard, without lens, tied up in a bundle of leaves).

---

*There is a specimen of the Golden-shouldered from Port Darwin (1897) in the Australian Museum collection, but it evidently died in captivity as a cage-bird, and so may have come from other parts.



Nest of the Wedge-tail Eagle.

Underneath the tree, thirty feet from the butt, was a little thicket of "dead finish" scrub, which I mapped out as a trysting place for "Stump" and myself ("Stump" is only an imitation constructed out of battered galvanised iron, and daubed over with rough paint to resemble other tree trunks of the vicinity). The ants, flies, beetles and small lizards, taking advantage of the little shade, had already entered into occupation, and I conjured in my mind a future "lively" time.

Still, I viewed with satisfaction the position of the "pieces" of the game I was playing, and felt that I had challenged the mighty Eagle to a game of chess. So when, five days later, two little fluffy eaglets appeared, it was my opponent's "opening move." To meet this I bored into the upright branch, already mentioned, with a three-quarter inch auger, leaving it in this position, and attached "Dummy" to the shank thereof at a distance of exactly twenty-six feet from the centre of the nest. "Dummy" was only a "pawn" in the game, but the move would occupy my opponent's attention while I would warily attack the stronghold with "Stump," whom I looked upon as my "Queen piece." I kept "Stump" as much out of sight as possible, but, starting from a spot half a mile distant, moved him up each day a "space" of about a hundred yards—and at each move I said "Check!" On the tenth day I reached the small thicket and hid "Stump" therein. This "check move" was certainly very menacing to my opponent's position, but the big creature appeared to be oblivious to all that was going on.

On the second day after hatching, it seemed strange that I had not seen either of the old birds, and I began to wonder if they had deserted, and consequently upset all my scheming; but when the nest was inspected the two chicks were alive and well, and a newly-killed lizard indicated they were being well tended. From subsequent observations, substantiated by those made at another nest, it became clear to me that it is the habit of Eagles not to tarry near home after the chicks have hatched. They may be seen miles away, flying low in search of food or soaring over at a great height, meanwhile constantly uttering a threatening whistle. That is the beginning and the end of an Eagle's fight in the interests of its young. I name the great Wedge-tail as being a most unusually cowardly bird in this respect, and affirm that there is more home-protection fight in a little Wagtail's toe than in an Eagle's whole body. When trapped or wounded, however, the Wedge-tail is a very ferocious and dangerous bird with which to trifle. He will "parry" and "duck," and pretend that his beak is his principal weapon of defence; but such is only his method of sparring for an opening, and when this shows he will, with lightning-like speed, bring up both talons in a snatching action, with disastrous results to any flesh which they may meet. The young birds, as soon as they can stand, will quite naturally employ the same defensive methods.

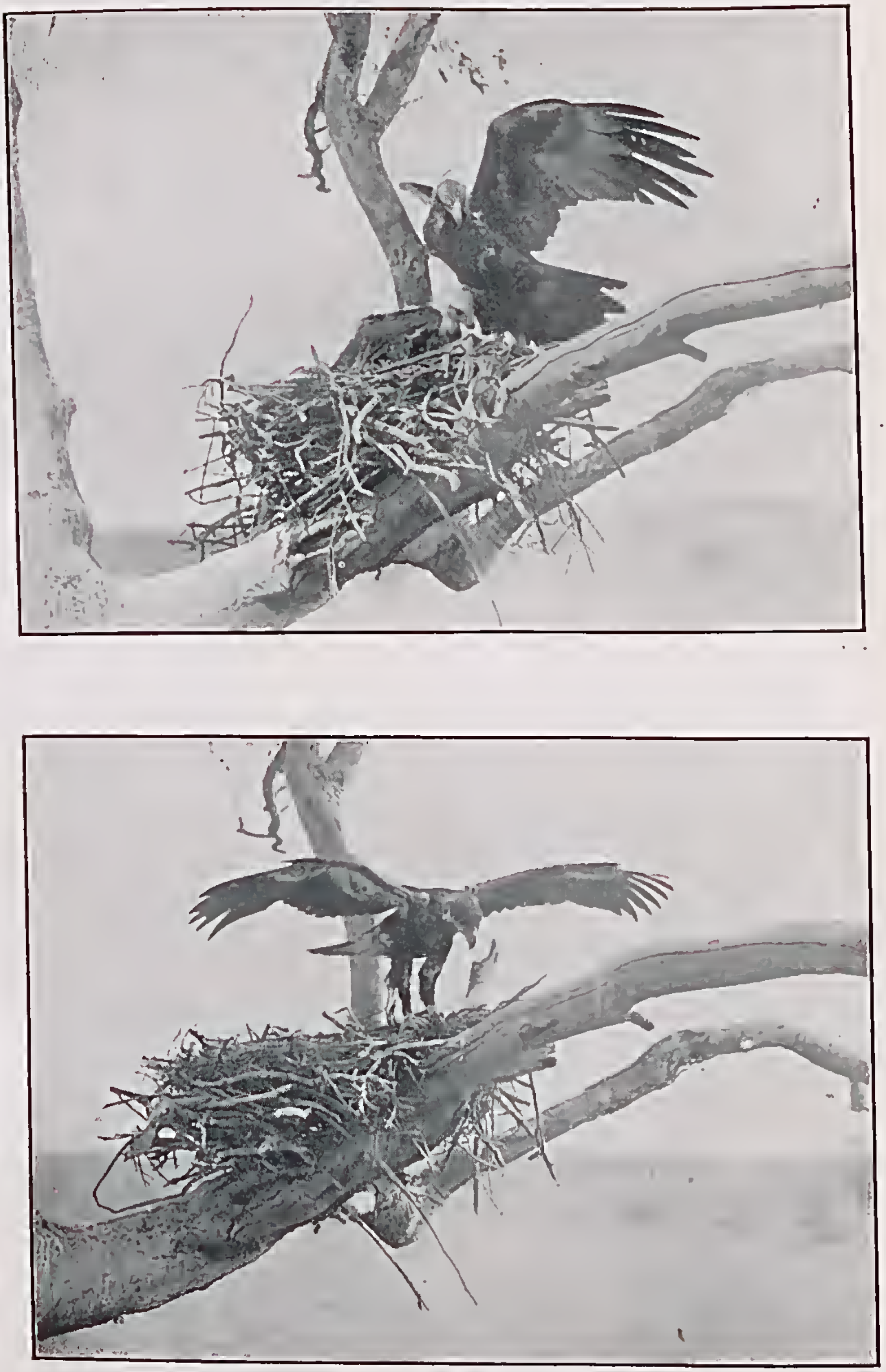
On the morning after "Stump's" arrival at the nest, I was startled to find the headless body of an eaglet on the ground nearby. Immediately I again ascended, fearful that both had been killed, and that the game was lost. However, to my delight, there remained the other eaglet, looking strong and healthy and growing nicely. So I more fully disguised "Stump," and left everything for a time in order to reassure the parent birds, should they feel curious in the matter. I could not arrive at any reason for the death of one chicken, but it seems an established fact that, although generally two eggs are laid and hatched, it is seldom that two young birds are reared. I have seen only one exception, and even then one bird was much larger and stronger than the other. On that occasion the season was bountiful, with no scarcity of natural food. The present season being just the opposite, with such food as lizards, snakes and kangaroo rats very scarce, it seems possible that it may be a trait of the Eagle to regulate the family in accordance with the varying supply of food.

During the period of hatching I saw an old bird only once, and then it was soaring at such a height as to be almost indistinguishable. With such indefinite information as to the time of day the birds made their visits, I did not relish entering into my vigil with only "Stump" and ants as companions, so I resolved to take one day to probe further into the mystery. Accordingly, on the following morning, well before daylight, I took a car visit to the vicinity of the nest, and, hiding myself as well as possible in the scanty bushes available, I waited until the break of dawn. There, sure enough on the high limb of a tree next the nest, were both Eagles, perching leisurely. As the light became a little stronger they saw me, and quickly, but quietly, planed away.

I came to the conclusion that very early breakfast was the chicken's daily meal, and, as the camera could not be relied upon to give its best in the early and poor light, I began to think I might be checkmated in my game, after all. Reasoning the matter out, however, I concluded that the feeding-time was very early in the morning. Certainly the old birds' presence at this time gave colour to the fact that they were not as forgetful of their home as my past week's observations had seemed to indicate. All the same, there was reason to believe at all times one bird is, or both birds are, continually in some commanding viewspot, taking notice of all that is going on at home. Later observations proved this surmise to be correct.

The possibility of failure through having to operate the camera in the very early morning was somewhat discouraging. Matters in all other respects seemed favourable to success, however, so I decided to put "Sanderson" in "Dummy's" place, and arrange all details and prepare for a trial of patience with my subject on the morrow. If unsuccessful in getting a snap, I would certainly get some experience that would help me for better results later on.

"Sanderson" being only a half-plate camera, and twenty-six feet distant from the nest, I decided to use a whole plate lens in order to secure the subject on the plate sufficiently large to admit of a fair-sized direct contact print. The focussing was a matter of some difficulty. Twenty feet is not very high, but when one



Nest, adult and young of the Wedge-tail Eagle.

NATIONAL MUSEUM MELBOURNE

arrives at the age when weight and inactivity have taken the place of youth and fearlessness, it is no easy matter to balance oneself on the top of a twenty-feet ladder, one leg across the limb and the other twisted through the rungs, and with one hand on the focussing screw and the other fighting the wind to keep the focussing cloth steady. My assistant held a page from an old stock and station agent's almanac to assist me in getting a sharp focus on the large figures. I secured this alright—and on the screen appeared 1st APRIL, 1923. (What right-thinking bird-photographer, however, would bother about a little detail of this kind? Do we not become immune to all such suggestions?)

I now set the lens diaphragm at F11, adjusted the shutter speed to 1/50 of a second, inserted the plate-holder carrying Imperial eclipse plates (650 H. & D.), and then left for home.

At 8 o'clock the following morning my assistant motored me to the scene of action again. It was a relief to find that the old bird had not been to the nest with food; accordingly, I again mounted the ladder, drew the slide, set the shutter, and satisfied myself that the thread leading from the shutter release to "Stump's" interior was not tangled up in any way. Taking the ladder some distance away, I returned, and went into hiding with confidence and a well-filled waterbag. My assistant drove the car home, leaving no fixtures calculated to arouse the suspicions of even a Wedge-tailed Eagle.

For the first hour or so I was feeling fairly comfortable and happy. I could see the eaglet above moving around the nest, and could hear him tearing at the tough skin of a stale frill-necked lizard. By eleven o'clock I began to feel uneasy in my cramped position. I felt then that my wish—that the bird would not come to the nest until the sun was well up in the heavens—was being truly realised. At one o'clock my assistant brought me a little lunch, and then went off again. The day was hot, and I ate heartily and drank well into the contents of my water-bag. That lunch near a young Eagle was, considering the surroundings, enjoyable enough, but at two o'clock I began to get restless. I developed an unscientific but very human feeling of peevishness! I even waxed decidedly antagonistic to the flies, ants and mosquitos that were tormenting me, and there was some latent savagery in the way I despatched a red-backed spider, two centipedes, and a small blue-tongued lizard! Possibly these creatures had no ulterior motives, but they were useful as subjects upon which to vent my injured feelings as the hours went by.

At last came 5 o'clock, upon which my assistant called with his Ford. And so I went home, not as Pepys has it, "in good content," but with an almost unhappy feeling common to the vanquished. It is useless, however, embarking on wild-bird photography if the effect of little set-backs (such as a fruitless day in a hollow log) cannot be worn off with a good night's sleep. So the next morning found me abroad again, at 8 o'clock, after that Eagle's photograph.

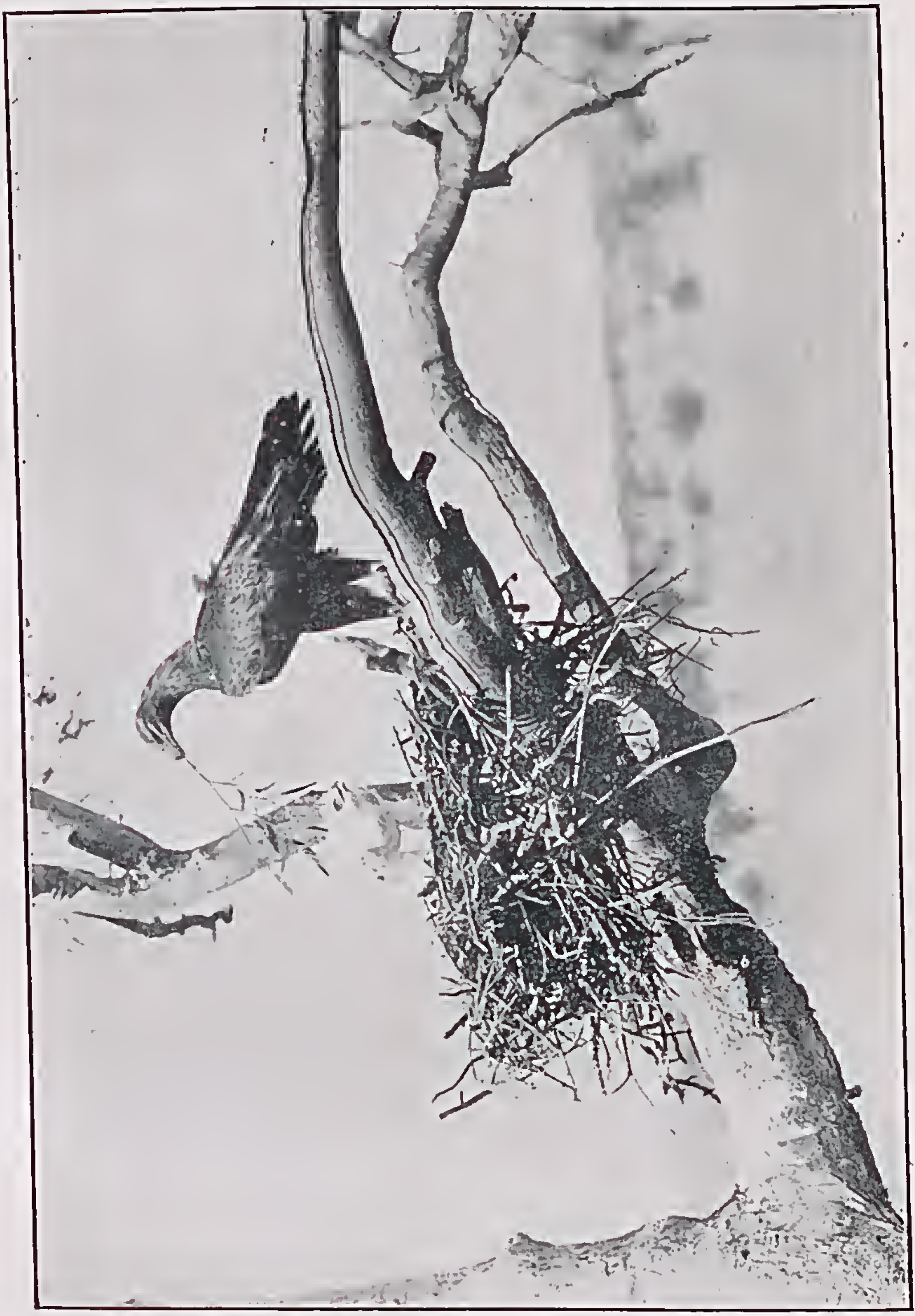
It is my practice when "Sanderson" has had a night out to check the focussing before attempting an exposure. On this occasion my attendant turned his old almanac round, whereupon from under the cloth I saw, in sharp relief, "1st OCTOBER, ALL SAINTS' DAY." Here, surely, was encouragement, even though I wondered, penitently, how I could be on the list after my mixed remarks of the previous day!

With a fresh bag of water and renewed determination, I crawled into my hiding "Stump" a few minutes after 8 o'clock. This day was cloudless, with no wind blowing, but considerable smoke hung in the atmosphere from distant bush-fires. The hum of my assistant's motor car had scarcely died away in the distance when the chicken above became very restless. It set up an incessant whistling, sometimes with lowered head, and then standing erect with wings straight above, but always with its eyes in one direction. I expected every minute to see a huge bird, with wide wing-span, alight on a branch near the nest almost with a thud. Instead, I heard not the slightest wing-movement or other sound, but saw the head of the old bird peering round an upright limb that hid its body from me, and then quickly slip off the limb and fly away. To this day I blame the eye of the camera for the fright that bird got.

This mess-up was very discouraging, and I concluded it was hopeless waiting any longer on that day. Reasoning the position out, I resolved it was better to make for home, and in the evening I could tell by the chicken's larder whether the parent had returned or not.

I was now afraid of two things. Firstly, there was the danger that my intrusions would mean starvation to the chicken: secondly, that the old bird would return and feed the nestling in the very early morning, when the light was too poor for a fast exposure. So I decided on a bold move—one upon which I would either win or lose. Just at dark, then, I went to the nest and found that the old bird had not been back—a fact which made me thank my luck that I had not put in the second full day waiting for the parent. The youngster was ravenously hungry, and I felt guilty and responsible for it. However, we had to see it through. Following out the new plan, my assistant lowered the young bird from the nest in a netted cage, the idea being to take the babe home for the night, feed it on sheep's kidneys and liver, and return it to the nest in the morning at nine o'clock. The parents, I figured, would miss him, and would hang about and visit him on his return at a time when the light was most favourable to photography. This move was successful to a degree.

The following day opened cloudless, with neither wind nor smoky atmosphere; therefore, the light was very strong and favourable. At nine o'clock we returned the chicken to the nest, and I retired again to my hiding-stump. Everything around was extremely quiet. Purposely I had not overfed the youngster, and



The Wedge-tail Eagle with leafy twig. Note the downy young.

Photo. by D. W. Gaukrodger, R.A.O.U.

[illegible] OF MELBOURNE

he searched well round the nest for more nourishment. He was very alert, and seemed continually to scan the horizon in every direction, as if the parent's return was overdue. At ten o'clock he began to get more uneasy, and commenced that incessant whistling call whilst he moved around the nest. He seemed to be watching something that was circling above, and although I could only see out in one direction, and that directly to the nest, it was easy to guess that the old bird was in the vicinity. Nevertheless, I live to wonder how I so suddenly beheld the huge bird standing near the edge of the nest, with a bough in its beak, whereas I neither saw nor heard her (or him) approaching. However, there the majestic Eagle stood, but not without the look of suspicion indicated by the craning of the neck. Without any flurry or jerking, I firmly strained at the release-thread, and as the shutter clicked at just about half-past ten, I said, "Checkmate!" The wink in "Sanderson's" eye did not flurry the bird, but certainly increased its suspicions, for, dropping the bough, it quietly and gracefully planed away.

At the moment of making the exposure the light was very good, and the subject apparently still, and I felt fairly confident of a good result, barring the accidents that often occur—especially to those negatives that are hard to replace!

Pleased with the thought of a successful negative, I was not long in erecting and mounting the ladder; next I pushed the slide over the exposed plate, wrapped the carrier in a dark cloth, and put this into a small satchel, and then made for home on foot, a distance of one and a half miles. (My assistant was not due to visit me till one o'clock). The plate was developed soon after my arrival home, and the result I considered satisfactory. It was, however, merely a stimulus to try for other exposures as far as leisure time would permit, and so long as the subject remained.

My experience to date gave me more confidence in my knowledge of the habits of Eagles, and I commenced to take more liberties with my subject. Withal, I did not alter my early impression that it was useless, single-handed, to creep into hiding and wait for the bird's return, as that Eagle's "eye" was, from some safe and distant lookout, assuredly watching the movements of all intruders to the home. Bushmen believe that the Crow (Australian Raven) can go into figures and actually count up to five; this aside, I am sure the Eagle, with all its cunning, cannot count two, and so discern that two persons would motor to the nest and only one drive away.

For the remaining pictures of the series, then, the procedure was to leave the camera set and paraphernalia arranged over night. The following morning my assistant would drive me to the scene, I would creep into hiding, and he would leave for home. I discontinued taking the eaglet to the station for the night, but, instead, would leave a little runabout car, with hood up, underneath the nesting-tree; this had the effect of keeping the meal-time back to suit my convenience, and the suitability of the light. This little car was removed as I went into hiding. My assistant would take to the chicken each day a sheep's kidney or chop to augment the parent's supply of lizards, as no doubt my constant intrusions were interfering considerably with the regularity of the baby's meals. The chick would take the meat readily enough from my assistant. The latter, however, was particularly careful to serve it from the end of a pointed stick, as the sight of a bare hand was sufficient to arouse the youngster to a display of that nasty snatching habit with his talons.

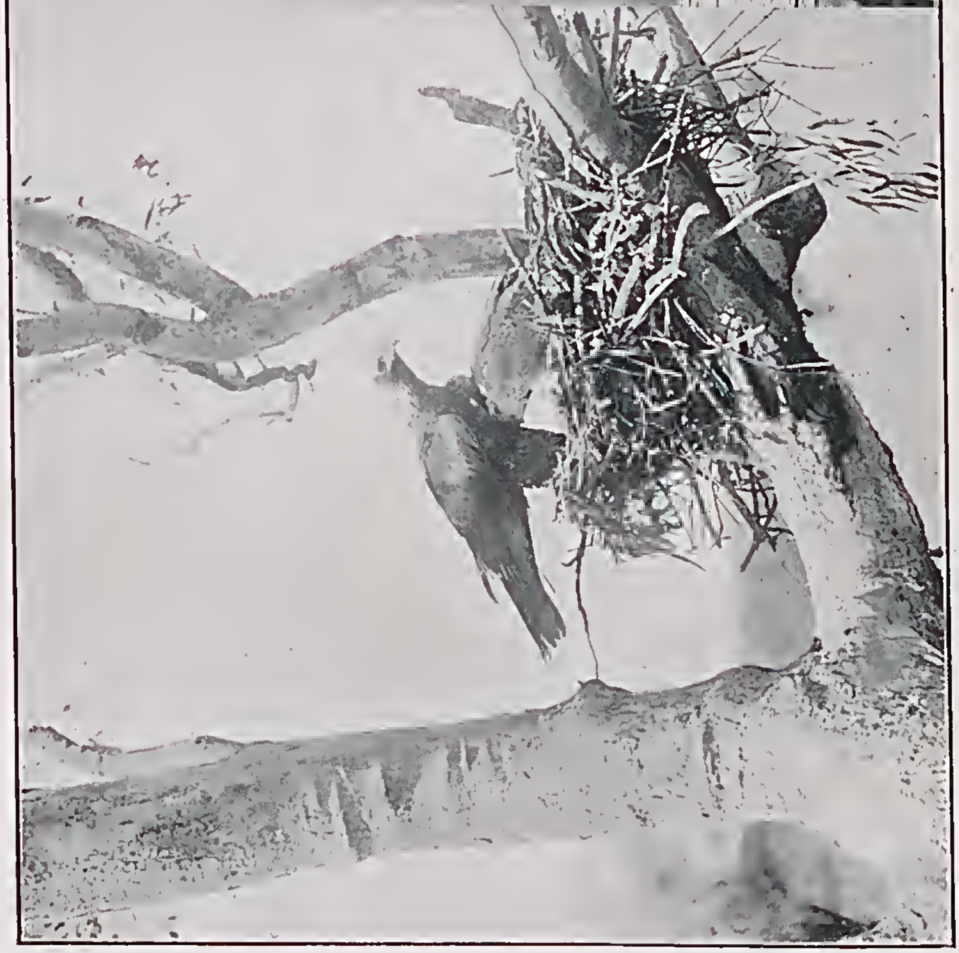
The pictures showing the wings raised were taken with a 5 x 4 Soho Reflex camera, fitted with a whole-plate lens working at 6.3, and having a focal-plane shutter set at 1-300 sec. One or two other pictures were obtained by using a Dallon telephoto lens on the same camera.

The series of photographs indicates, by the growth of the chicken, that considerable time elapsed between the taking of the first and last pictures. To be precise, the first was taken on September 23rd, and the last on November 24th, 1923.

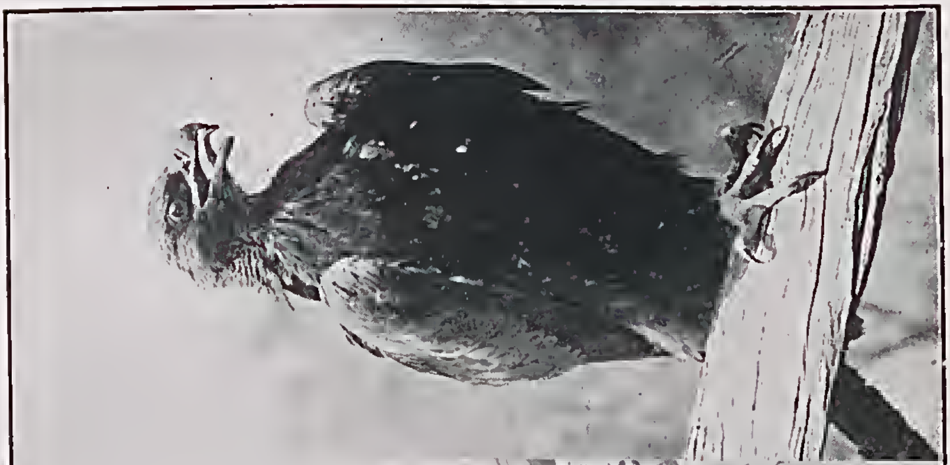
It must not be surmised that this series comprises the whole of the exposures made. Several were failures owing to unfavourable light and wind; and other plates came to grief owing to accidents in handling or developing. I regretted very much losing an excellent exposure by accidently dropping the plate when partly developed. This showed the young bird qualifying for a future soaring "stunt"; it was depicted fully a foot above the nest, with wings outspread, taking advantage of a strong breeze to keep itself almost stationary in the air.

Generally speaking, these attempts to portray by photography "the way of an Eagle" meant considerable arduous labour, coupled with patience and determination. Nevertheless, all was useful experience from a nature photographer's point of view, and all went to assist in observing the many peculiarities and general habits of this majestic and interesting bird, so that, after all, I look back with pleasure on my thirteen weeks' study of the Wedge-tail family. Matters certainly would have been much easier had the season been favourable from a grazier's point of view; as the case was, my primary attention had to be given to station work; otherwise, I am sure, I could have improved my series considerably.

In looking over my field note-book, I find on record that, on the day after the young birds were hatched, around and under the nest were remains of twenty-four lizards of various kinds. This was an indication that one parent bird found food for the other during, at least, the latter days of incubation; but I could not determine whether or not both birds took turns in incubating. It was clear to me, however, that one parent gave more attention to providing food for the chickens; this bird, I assumed to be the male, it being the smaller of the two. The larger and much sleeker bird seen carrying the small bloodwood branch came on several occasions without either branch or food; but she (?) seemed to make a close inspection of the nest as if taking stock as to its cleanliness and the amount of food the youngster had



Adult Wedge-tail at nest.



Young Wedge-tail Eagle.

NAL MUSEUM MELBOURNE

in store. And as the big bird moved from one side of the nest to the other, by wing-assisted jumps, the whole structure shook.

It is easy to understand, considering these frequent performances, and also the landing on the nest with heavy weights of food, how those large quantities of loose sticks usually found under the old nests are accumulated. The nest material is not in any way woven, but is loosely laid, cross-ways, on the firm foundation of a heavy fork or crooked limbs of the tree. The nest I had under observation was considerably smaller at the date of the chicken leaving than three months previously; synchronously, there was a corresponding increase in the quantity of material on the ground below.

During the very early days of the eaglet's life, the parent bird merely rips the bodies of the food-victims to give easy access to the softest parts. After that, the food, be it wallaby, Emu or lizard, is just landed on the nest, and the young one does the rest. I do not think the old bird actually places food in the eaglet's bill, even at the date of hatching. Incidentally, to listen to the tearing noise and to see the rapidity with which a victim can be demolished, make one resolve never willingly to fall foul of an Eagle's beak and claws.

It is another habit of the Eagle that the adult does not approach the nest from above. When food is procured the parent flies very low, being only a few feet off the ground when near the nest, and it then swoops upwards and very deftly lands on the nest. Should any wind be blowing, at all times the bird's head will be towards the breeze. As the eaglet gains size, strength and wing-power, sometimes in its anxiety to meet the parent, it will get decidedly in the way and prevent a neat landing. On one occasion my young bird was so close to the edge when the parent arrived, that the latter neatly lifted itself over the head of the youngster and landed in the middle of the nest. Between this landing and the youngster's anxiety to get round to examine its breakfast, I thought for a moment that the whole structure and contents would fall to the ground.

As my experience increased, from my hiding-stump I could always tell when the old birds were approaching; for, besides the excited and incessant whistling of the youngster, other birds (such as Magpies, Soldier-birds and Crows) would break out with their various threatening calls, and, as it were, act as a musical escort almost to the nest.

It is a much-debated question amongst graziers and others as to whether or not it is "the way of an Eagle" to kill lambs. I certainly believe they would do so if their natural food became scarce, but I have never yet seen an Eagle attacking a live lamb; nor have I met a bushman who has actually seen one doing so—this notwithstanding enquiries I have made from many very observant men. I admit there is damning circumstantial evidence in the finding of newly-killed lambs at the birds' nests, and also in the feeding from carcases by the birds'; but this is not conclusive evidence that the birds actually do the killing, there being so many other reasons that would account for mortalities in lambs.

On one occasion some visitors coming to Alice Downs told me I should get busy with strychnine baits, as the Eagles were killing the lambs; they said that a few miles back they had seen evidence showing that two Eagles had just killed a lamb and were feasting on the carcase near the road. On enquiring, I found that the lamb in question had been accidentally maimed at the shearing-shed, and a station-hand had killed it to end its sufferings, but was unable just at the time to burn the carcase. The Eagles, eying this freshly-killed morsel (the sight—or smell—of blood will bring them from afar) naturally descended: thus they were feasting, and incidentally making themselves appear guilty of killing, when my visiting friends came along. Strangely enough, these birds turned out to be those whose home I was observing, as on the following day I found at the nest a portion of a lamb's broken leg-bone, which I fitted into the broken leg of the lamb that my visitors had seen, nearly two miles distant. The circumstantial evidence was very strong that the birds had killed the lamb to provide themselves and family with food; I proved this to be wrong, and now wonder how many times similar evidence has condemned the birds.

With some knowledge of Wedge-tailed Eagles in other localities besides this Barcoo district, it is clear to me that they build as high as suitable trees will admit, but when the timber is low they will curtail the height; indeed, in some scrub districts, or where trees are very stunted and scarce, nests may be found and the contents examined from the back of one's saddle-horse. But in every instance, whether the nest is high or low, it commands a good view of the surrounding country, so that the birds cannot be surprised at close quarters.

Eagles will also add to and occupy the same nest season after season. Under these circumstances the nests become huge structures. One, measured with a surveyor's levelling staff, proved to be nine feet six inches deep on the outside and five feet six inches across the top. An examination showed there were *six* different and distinct nests, one above the other. When weighed, the whole mass turned the scale at nine hundred and twenty pounds. The sticks, leaves, grass, etc., were in a perfectly dry state, so that there was no increase of weight through moisture. Numbers of the nest sticks were three feet six inches long, and a full inch in diameter. On the ground below the nest was a considerable quantity of material that had fallen or been shaken from it; but this, of course, was not included in the weighing.

I have written these lines from notes jotted down with subjects in sight. It is not by any means claimed that a fascinating topic has become exhausted, but I hope I have at least illustrated that three months' continual observation of this majestic bird discloses that there is much that is instructive, peculiar and interesting in "the way of an Eagle."

A Spring Excursion into South-Western Queensland.

By Dr. W. MACGILLIVRAY, C.F.A.O.U., Broken Hill,
Sometime President, R.A.O.U.

A favourable season as a result of late autumn and early winter rains and a desire to become better acquainted with the distribution of bird and plant life in that part of South-western Queensland between the Warrego and Wilson Rivers were sufficient inducements for Dr. A. Chenery and myself to arrange a month's holiday in that direction. Mr. P. D. Riddell, principal of the local Technical College, who is keenly interested in out-of-door life, accompanied us as chief photographer, and Norman Read was in charge of our means of transport, a motor trolly, which held all our impedimenta and enough petrol to take us to the nearest railhead at Cunnamulla.

A start was made along the northern road from Broken Hill on the morning of August 15th, 1923. Nine miles out Stephens Creek was crossed, a little above the reservoir which was Broken Hill's main water supply during its earlier years. The creek was sandy-bedded, bordered mainly with red-gums, and, as was to be expected in a country the rainfall of which for the last 40 years averaged 9.5 inches, it ran only at uncertain intervals, and then for one or two days at a time. The same may be said of all the other creeks in the Western Darling country. At 19 miles we crossed Yalcowinna Creek, which arched away to our right, and at the same time we came to the grand unconformity of geologists separating the archeozoic rocks of the Broken Hill series from the Torrowangee series, of slightly lesser age. Here we passed over an elevated tract of gravelly country until we reached Campbell's Creek, which we skirted for a few miles. A few Galahs (*Cacatua roseicapilla*), Bare-eyed Cockatoos (*C. sanguinea*), and Ring-necks (*Barnardius barnardi*) were paired and nesting in the red-gums of this creek, but there was a general scarcity of bird life, as last year's severe drought and an earlier and better rainfall further north had prevented the return of those whose movements were regulated by food-supply.

The growth of herbage had been delayed also by a winter of more than ordinary severity, and only the earlier flowering plants were noted. *Blennodia lasiocarpa*, one of the earliest, made the hillsides and slopes in many places look as though covered with snow. *Blennodia trisecta*, of more erect growth, occurred in patches; the yellow of *Blennodia nasturtioides* and the blue of *Erodium cygnorum* varied the colour scheme.

At about forty miles we commenced to wend our way through the Euriowie Hills—outliers of the Barrier Range. Here the brilliant yellow composite *Helipterum polygalifolium* was in places well in flower. Mulga (*Acacia aneura*) and Dead Finish

(*A. tetragonophylla*) clothed the hillsides, the latter flowering freely. Leaving these hills the road opened out and ran over undulating country to the right of the Barrier Range till we reached Fowler's Gap, where we halted for lunch, and noted nesting Galahs and a few Bare-eyed Cockatoos along the creek. Crossing the creek we were soon away from the main range, and for the next eight miles we made our way over ironstone-gravel country with a fair covering of herbage, amongst which were many flowering plants. Several Australian Dotterels (*Peltohyas australis*), a few pairs of Orange Chats (*Epthianura aurifrons*), and the Pipit (*Anthus australis*) were flushed. When we reached Sandy Creek bore, the country changed, and became more sandy with a scanty covering of herbage and occasional stunted Mulgas and Hakeas (*H. leucoptera*). The big white and yellow composite (*Myriocephalus stuarti*) was only coming into bud. We soon reached Bancannia Lake, which was full for the first time for many years, and presented a fine sight. We were here directed to turn off at a dead horse eight miles farther on, where we left the northern road and took a north-easterly one. We found that caterpillars were numerous, and that much of the herbage, especially the New Zealand spinach, was eaten to bare stalks. When half-way to Nundora we flushed numbers of Whistling Eagles (*Haliastur sphenurus*) from the ground, with a few Black Kites (*Milvus migrans*). Birds of both species were busily engaged feeding on the caterpillars, which were of all sizes, from those just hatched to mature ones burrowing into the ground to pupate. The flowering herbage was also attended by a small brown moth in great numbers.

Bare-eyed Cockatoos and Galahs were becoming more numerous on the creeks. Soon after leaving Nundora Station we came to a gate, in one of the posts of which a pair of Galahs had their nesting hollow. Wonnaminta Station was reached about an hour after dark when we were cordially welcomed by Mr. and Mrs. Aubrey Jackson. Next morning we looked round the homestead, and noted the fine growth of young redgums around the dams and along the creek to take the place of the old trees which were cut out years before to feed the engine of a wool-scouring plant. Numbers of Fairy Martins (*Hylochelidon ariel*) were busily constructing their spouted mud nests under verandahs and sheds. The arrival of a Goshawk sent the lot high into the air, where they remained till the unwelcome visitor had taken his departure. We were shown the site of the nest of a Greenie (*Meliphaga penicillata*) in a vine on one of the verandahs. The plaster had fallen from part of the pisa wall of the house, and a pair of Red-backed Kingfishers (*Halcyon pyrrhopygius*) had burrowed into the wall and reared a family the previous year. Striated Pardalotes had also made use of this wall for the same purpose. Advance parties of the migratory Wood Swallows (*Artamus superciliosus* and *A. personatus*) were passing high overhead or halting to feed and rest before going further south.

On leaving Wonnaminta our road took us over gravelly country crossing the eastern end of the isolated Koonenberry Range, where it had weathered away to a small ridge. The surrounding country bore a picturesque appearance. Bare white quartz patches and a vivid green herbage alternated with areas made white with *Blennodia lasiocarpa*, or yellow with *B. nasturtioides*, and the composite *Helipterum polygalifolium*. We pulled up within two miles of the range as we intended to make an examination of its bird and plant life. To reach it we traversed a gravelly plain with many shallow depressions—"crab-holes"—in which vegetation was particularly luxuriant, *Helipterum strictum* and *Senecio brachyglossus* forming the greater part of the crab-hole vegetation. We disturbed a White-fronted Chat (*Epthianura albifrons*) from her nest low down in a perennial saltbush. She fluttered away to lead us from the nest, which contained three hard-set eggs. Our next find was a nest of the Orange Chat (*E. aurifrons*), from which the female flushed. The nest held three of the Chat's eggs and one egg of the Narrow-billed Bronze Cuckoo (*Chalcites basalis*). The Cuckoo deserved credit for finding a nest so well concealed in a big open plain.

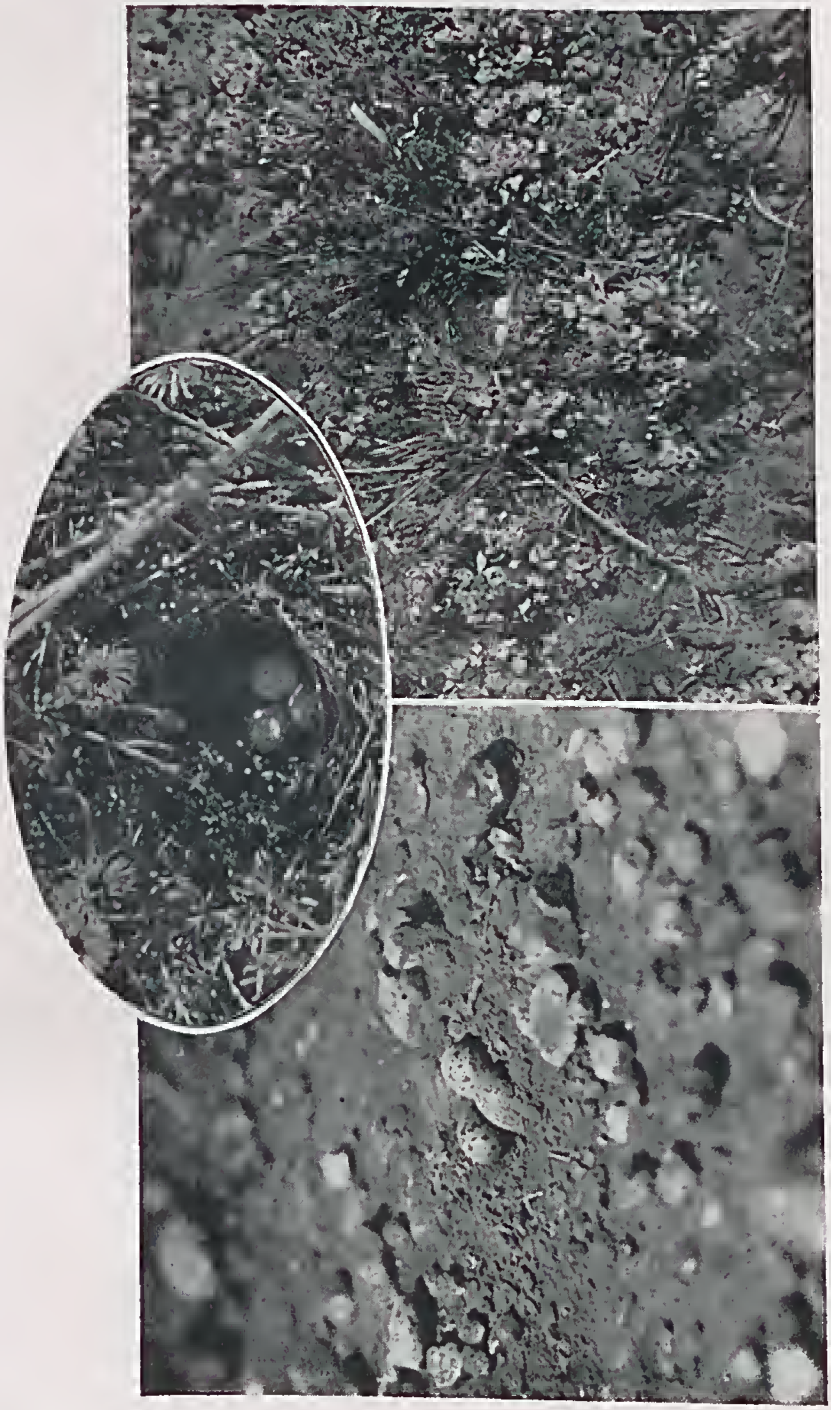
On Koonenberry itself we saw very few birds other than Red-capped Robins (*Petroica goodenovii*), Chestnut-eared Finches (*Taeniopygia castanotis*) and a small flock of Black-capped Tree-runners (*Neositta pileata*). Dr. Chenery found a nest of the Wedgebill (*Sphenostoma cristata*) containing a pair of half-fledged young in a Dead-finish and a Singing Honeyeater's nest unusually placed low down in a *Kochia* bush. A gum creek crossing through a gap at the end of the range was frequented by Bare-eyed Cockatoos, Galahs, Ravens, Yellow-throated Miners, Greenies and Pardalotes.

About two miles from Koonenberry and three from Morden Station, we had to spend three days to await a new magneto for our trolly. A pair of Black-backed Magpies (*Gymnorhina tibicen*), two pairs of Yellow-throated Miners (*Myzantha flavigula*), and a Crested Pigeon (*Ocyphaps lophotes*) had nests containing young within a stone's throw of our camp. Dr. Chenery, while wandering down the creek, found Black (*Myzomela nigra*) and Pied (*Lichnotentha picata*) Honeyeaters feeding on the nectar-bearing flowers of the tobacco bushes (*Nicotiana glauca*), in company with Spiny-cheeked (*Acanthagenys rufogularis*), Singing (*Meliphaga virescens*) and White-plumed Honeyeaters (Greenies).

About a mile and a half from our camp along the White Cliffs Road we discovered a flat with a good deal of *Acacia cana* growing upon it. We explored this, and found a part where there was a thick under-brush of *Eremophila maculata*, all in flower, and showing much variation in colour. The flowers were honey-laden, and had attracted a number of honey-eating birds, and as they have a long flowering period, the birds were nesting, or preparing to do so. Pied (*Certhionyx variegatus*), Black (*Myzomela nigra*), White-fronted (*Glyciphila albifrons*), White-plumed, Spiny-cheeked and Singing Honeyeaters were seen and heard on all sides. The White-fronted had nests in course of construction, some containing fresh eggs, and others young birds in all stages from recently hatched fledglings to fully fledged birds just leaving the nest. The Black Honeyeaters were in pairs, but, being a little too early, we did not find any nests. We later found one nest of the Pied Honeyeater containing two eggs, and on the following day the clutch was completed. This was the only nest of this species found. It was an open cup-shaped structure composed of dried stalks of herbage and rootlets, and was lined with fine rootlets and placed at about one foot from the ground in a dead *Eremophila maculata*, through which was growing *Enchylaena tomentosa* with red berries, and a beautiful white *Brachycome*. The nest measured, in millimetres: outside diameter, 90; inside, 60; outside depth, 47; inside, 35.

The nests of the White-fronted Honeyeater (*Glyciphila albifrons*) were placed, one in an *Acacia cana*, at about three feet from the ground, another in a *Pimelea*, well concealed, at about the same height, and the rest in *Eremophila maculata*, at on an average about one foot from the ground; they were usually well concealed. The open nests were cup-shaped, composed of small stalks of dried herbage and grasses and lined with the down from the seeds of *Senecio gregorii*. In a pair of young a few days old, the skin was leaden-coloured on the feather tracts, lighter on other parts, with ashy-coloured down on head, dorsal, humeral, and femoral tracts; bill pale brown, gape yellow, irides hazel, and legs pale slate. Three nests of the Singing Honeyeater (*Meliphaga virescens*) were found, all containing fresh eggs. One of these in an *Acacia cana* was beautifully constructed almost wholly of sheep's wool. A Spotted Nightjar was flushed from a gully in a stony hill at the back of the camp.

We left camp late on the 19th, and stopped at Morden Station for the night. During the evening Mr. White, the manager, asked me: "Did you ever hear of a bird covering her eggs over?" He then proceeded to relate that about six weeks previously when driving sheep out near Lake Elder Station, his attention was attracted to a small dun-coloured bird which seemed to be brushing the ground with its wings in front of the advancing sheep. On going over she flew away, and he found three eggs on the ground. They were covered with sand and pebbles and other debris, so that only a small portion of one remained visible. The bird from his description was an Australian Dotterel (*Peltohyas australis*). This habit has been noted before, but I have witnessed



Nest and eggs of Australian Dotterel. Nest and eggs of the Gibber-bird.

Centre: Nest of the Pied Honeyeater.

NATIONAL MUSEUM MELBOURNE

it only once, when the eggs were almost wholly covered with sand.

We left Morden late on the following morning. At about six miles out we found a pair of Galahs busily bedding a hollow in a gate-post with green gum leaves. Our way led us over gravelly country covered with flowering composites, with clumps of Whitewood, across sandy ridges on which Mulga was the dominant tree, with Dead-finish, Whitewood, five species of *Eremophila* and that fine Daisy *Myriocephalus Stuarti* well in flower. We arrived at Yancannia Station in time for lunch, and admired a fine scarlet-flowering Gum (*Eucalyptus erythronema*), a showy tree with smooth white stem and gracefully drooping foliage with large scarlet flowers all over it. The leaves are small and lanceolate. It does better than the Western Australian Red-flowering Gum (*E. ficifolia*) in the drier parts of our country. We were anxious to push on, and took to the road which led us through rankly growing herbage around the end of the fine station waterhole—the only permanent natural waterhole west of the Darling in this State. The country we passed over was open and gravelly, replete with wild flowers, and intersected with creeks bordered with Mulga, Belar (*Casuarina*), and Moulie trees (*Owenia acidula*). On sandy ridges there was more scrub and under-bush. Birds, other than Galahs, were not plentiful.

Bootra Station was our next halting-place for a few minutes only to get directions as to the road, which from here ran easterly towards the Paroo. We ran past the woolshed, where preparations were being made to start shearing, passed through fairly thick Mulga and cattle-bush scrub, with an under-scrub of *Eremophilæ*, and the ground well carpeted with herbage. It was not till the scrub opened out that we saw many birds. Short-billed Crows (*Corvus bennetti*) were nesting in all directions. Wood-Swallows (*Artamus cinereus, A. superciliosus,* and *A. personatus*) were numerous, with Rufous Song-Larks, Singing Honeyeaters, Red-capped Robins, Wedgebills and Chestnut-backed Thornbills. We pulled up for a few minutes under a Mulga, from which a Wedgebill flew hurriedly. Investigation revealed a nest containing three eggs in a bunch of Mistletoe (*Loranthus exocarpi*). As the light was failing we camped on a creek timbered with Bimble Box (*Eucalyptus populifolia*), remarkable for its glossy, green, aspen-like leaves.

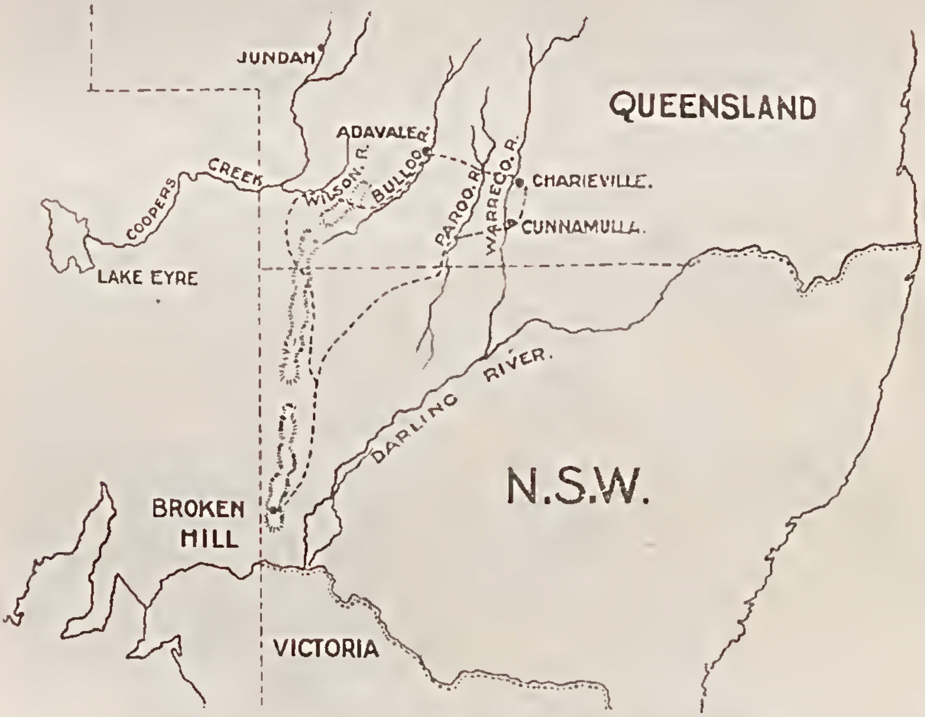
Early next morning a Short-billed Crow, whose nest was in a Mulga near the dam, woke us with his harsh calling. A Rufous Song-Lark sang more pleasantly quite near our camp and not many yards away his mate was flushed from her nest, well hidden amongst the spinach in the bed of the creek. A Spiny-cheeked Honeyeater was tending her nest in a bunch of Mistletoe on a Mulga, and accompanied her early morning task with a varied and melodious song; she is one of the finest vocalists of the bush. A pair of Galahs had been vainly trying to bed a hollow with green leaves; but, as there was a hole in the bottom, the only result was a considerable heap of leaves on the ground at the foot of the stump. I blocked the hole so that their labours would no longer be in vain. A Crested Bronzewing was sitting on her frail nest in a bunch of Mistletoe.

An early start from this camp on a beautifully fresh sunny morning soon brought us, through Mulga, Whitewood and Bullock-bush, to No. 3 bore, about which we found a flock of 150 Emus feeding on the green herbage. A fine Eremophila (*E. Bowmani*), with glaucous foliage and lovely lavender flowers, was much admired by the party. Our road now took us through a scrub of *Acacia ligulata* on sandy ground, with nearly all depressions still holding water. This was succeeded by thick Mulga and Bullock-bush scrub for a long way. Emus were plentiful and mostly in pairs. The herbage had been good all the way, and the many wild flowers coloured the ground yellow, lavender or white, according to the prevalence of different plants. We pulled up at Arosino late in the afternoon, and found that we had only 25 miles more to travel before we should reach the Paroo at Wanaaring. This town consists mostly of empty houses and ruins. The Paroo had lately been in flood, but was then just trickling between a series of lagoons. It was bordered with Red-gums (*Eucalyptus rostrata*), Black Box (*E. bicolor*), Yapunyah (*E. ochrophloia*), and Bimble-box (*E. populifolia*), with the Swamp Acacia (*A. stenophylla*) and Lignum (*Muehlenbeckia cunninghami*). Along the banks around the town was a low scrub of *Dodonoca viscosa* and *Olearia pimeleoides* — the latter gloriously in flower. The Yapunyahs were in blossom, and attracted numbers of honey-eating birds.

We left late on the 22nd August, taking the road which wended its way northwards parallel with the Paroo, through sandy scrub country or across flats subject to inundation from the river. We noted Pied and Black Honeyeaters, Pallid Cuckoos, Red-capped Robins, and Jacky Winters. At forty miles we stopped at Willara Station for lunch. After leaving Willara the road crossed the Paroo, but kept along it till we stopped at Talyalye to effect repairs to our radiator. Whilst our driver was doing this we walked on and noted the following birds: Grey Falcon, Brown Hawk, Whistling Eagle, Short-billed Crows, Galahs, Ringnecks, Blue Bonnets (*Psephotus hæmatonotus xanthorrhous*), Crested Pigeons, Red-capped Robins, Singing, White-plumed and Black Honeyeaters. Dr. Chenery found in a charred Mulga stump a nest of the Chestnut-backed Thornbill (*Acanthiza uropygialis*); it contained three eggs. These birds were common in the scrubs. Several Whitefaces of the common species (*Aphelocephala leucopsis*) were also seen. The car overtook us, and we went on, till towards evening we passed through a natural avenue of Box Trees, then a scrub of Turpentine (*Eremophila sturti*) and *Dodonæa viscosa* before entering Hungerford—the border town.

The post office is in New South Wales and the rest of the town in Queensland. We made a few enquiries at the hotel, and then crossed the Paroo again. It had here a wide bed with several small waterholes and a stream about a foot in width still running. We camped on ground that had been flooded; it made very hard bedding.

Early next morning we heard from the trees along the river the wonderfully liquid and melodious notes of the Black-throated (Pied) Butcher-Birds and also those of the Harmonious (Grey) Thrush. Galahs were, as usual, numerous. These birds are increasing all through this country since the departure from their happy hunting grounds of the Aborigines, who, raiding all the creeks constantly for young birds, acted as a natural check to their increase. Ringnecks, White-shouldered Caterpillar-eaters, White-plumed, Black, and Spiny-cheeked Honeyeaters, and Yellow-throated Miners were common. Many pairs of White-browed Wood-Swallows were nesting. The Brown Weebill (*Smicrornis brevirostris*) was very active amongst the leaves of the box-trees, searching for minor forms of life, clinging head downwards to the terminal branchlets, or hovering in front of them. Very little escaped it, and it was always on the move.



The route followed is shown by the dotted line.

Leaving camp we still followed up along the Paroo on a good road. The vegetation became more varied as we proceeded north and the country became more thickly timbered. Ringbarking and burning off seemed strange to us from the borderland of the desert. Eighty miles of this road brought us to Eulo. The sandy country on the way supported a scrub of Gidgee (*Acacia Cambagei*), Ironwood (*Acacia excelsa*), Mulga (*Acacia aneura*), with Bloodwood, Beefwood, and *Eremophila Sturti*, which is however, gradually giving place to *E. Mitchelli*. On the flooded ground *Eucalyptus ochrophloia* is flowering freely; *Eucalyptus bicolor* is still common, with *Eremophila bignoniaeflora* and *E. polyclada*. Late rains had fallen in places, and as a consequence the country was covered with flowering herbage for miles. Further on was a tract of dry country, where there was little more than the timber and bigger shrubs. Yellow-throated Miners, Little Friar-birds, and White-plumed Honeyeaters were feeding on the blossoming Yapunyahs and Bloodwoods. Harmonious Thrushes, Brown Flycatchers, Brown Tree-creepers, Grey-crowned Babblers (*Pomatostomus temporalis*), Red-capped Robins, Yellow-tailed, and Chestnut-tailed Thornbills were common, and also Blue-bonnets, Galahs, and Weejugglers or Pink Cockatoos (*Cacatua leadbeateri*). Eulo is a small hamlet, consisting of a hotel and a few houses.

Our road now turned east, leaving the Paroo and crossing the range that divides this river from the Warrego, another tributary of the Darling. After leaving Eulo we passed through thick Gidgee, Mulga and Beefwood scrub for several miles, then the country opened out before we crossed a gravel ridge which marked the southern end of the Cunnamulla Range, separating the Paroo from the Warrego. Here we noted a very pretty Dodonœa, with pinnate leaves (*D. boroniæfolia*), its seed vessels in all shades of colour from green and yellowish-green to richest dark crimson. Near Moonjarree Station the country was dry and only scantily covered with herbage. As we neared the Warrego some very symmetrical Murray Pines (*Callitris robusta*), with several fine Wilgas (*Geijera parviflora*) gave the country a park-like aspect. Our road wound through bordering box and gum trees before crossing the Warrego to enter Cunnamulla. This is a considerable town of from 1,500 to 2,000 inhabitants, dependent upon the surrounding grazing areas for its livelihood. It is the terminus of the railway line that runs south from Charleville. A new shire hall is to be built and a new hospital and maternity wards are in course of erection. The water supply is from an artesian bore which has a daily flow of a million and a half gallons. The water is excellent for drinking and all domestic uses, and as it comes hot from the taps in the town we revelled in a hot shower-bath after our long and dusty trip. The streets are well kept, and we were interested in the curious bottle tree (*Brachychiton rupestris*), with its bulging trunk and fine shady top, first obtained in this locality by Major Mitchell. Peaceful Doves were quite at home in the street trees.

We left Cunnamulla on the 24th, taking the road which ran north along the Warrego to Charleville, a distance of 123 miles. It passed through interesting forest country, in which we noted Sulphur-crested Cockatoos, Galahs, Cockatiels, and Crimson-wing Lories. Choughs and Apostle-birds were in flocks and common. Grey-crowned Babblers (*Pomatostomus temporalis*) were first seen half-way between Eulo and Hungerford, on the Paroo, and have entirely replaced the White-browed (*P. superciliosus*) and the Chestnut-crowned (*P. ruficeps*). Harmonious Thrushes were frequently seen and heard. We camped for the night on the river bank, which was here clothed with box, bloodwood and red-gum, with an under-scrub of tea-tree. Boobook Owls and Owlet Nightjars called during the night. The Koala (Native Bear), which here finds its western limit, also made itself heard frequently. In the morning, Dr. Chenery and I went up and down the river, but found little of interest, so we moved on. The trees and shrubs became more plentiful and varied and of better growth as we travelled north into a region of greater rainfall. Nearing Charleville we passed through a scrub of Silver-leafed Ironbark (*Eucalyptus melanophloia*), in which were many interesting shrubs and a rough tussocky grass (*Triodia Mitchelli*), which exhaled an agreeable perfume, apparently from the leaves, which must be fairly rich in some essential oil. On the outskirts of Charleville we passed several tall, graceful, clean-limbed Eucalypts with dark tesselated butts (*E. tesselaris*).

It was Saturday midday when we entered the town and hurried to enquire as to a likely camping-place near the town, scrub and water being named as essentials. We were recommended to go to Ambathala Station, 70 miles out on the Adavale road. We decided, however, to retrace our steps and to camp on the Warrego for the week-end. We had lunch in the Ironbark scrub passed through earlier in the day, and noted the Noisy Friar-bird (*Philemon corniculatus*), the Little Friar-bird (*P. citreogularis*), Jacky Winter (*Microeca fascinans*), the Little Thornbill (*Acanthiza nana*), the Brown Weebill (*Smicrornis brevirostris*), the Noisy Miner (*Myzantha garrula*), and Greenie (*Meliphaga penicillata*). During the night Boobook Owls and Native Bears (Koalas) were heard in the river timbers. We noted here Bronzewings, Crested Pigeons and Peaceful Doves. Early in the morning a pair of Eastern Shrike-tits were seen searching the trees for food. A Square-tailed Kite (*Lophoictinia isura*) was commencing a nest on a horizontal fork of a tree growing by our camp. The bird's method was to sail slowly over the tree-tops till a suitable dry branch was seen; this was swooped upon and snatched off with the bird's claws without stopping, carried to the nesting site, and transferred to the bill before alighting, when it was arranged on the fork. The bird had great trouble with these first sticks of the foundation, as they frequently slipped off, and fell to the ground. Sometimes the wings would be spread downwards to surround the stick till it was arranged by the bird's bill. Many Hawks use their wings in this way when capturing their prey to prevent its escape. Two sticks out of every three brought back would be dropped; but no attempt was ever made to recover fallen sticks from the ground, nor were any gathered from the ground elsewhere; all were snatched from the tree-tops. This species is a rarity in the southern parts of Australia, this pair being the first that I have seen in forty years. After breakfast Dr. Chenery and I went across the river to investigate the scrub along the channel, as we thought it a likely place to find the long-lost Charleville Scrub-Wren (*Sericornis tyrannula*), but we were unsuccessful. The type specimen was obtained at Charleville many years ago, deposited in the Brisbane Museum, and lost, so that no collection now has any specimen of this bird. At the present time it is the only Australian bird described from a single specimen. Our search was fruitless, and we went from the river to try the country out from its western side. At first this consisted of open forest of Yapunyah, Gidgee, Mulga, and *Eremophila Mitchelli.* The two Friar-birds previously mentioned, Miners, Greenies, and Peaceful Doves were numerous; Brown Tree-creepers and Brown Flycatchers (Jacky Winters) were common. We passed on to a gravelly ridge covered with Mulga and Gidgee scrub with a thick underbrush of flowering shrubs. There was also a considerable amount of dead timber lying about. We noted here the Little, the Chestnut-tailed and the Yellow-tailed Thornbills. A nest of the last species containing three fresh eggs of the Tit with one of the Narrow-billed Bronze Cuckoo was found. We saw here the White-browed Tree-creeper (*Climacteris superciliosa*), the Orange-winged Sittella (*Neositta chrysoptera*), the Grey Fantail (*Rhipidura flabellifera*), and the Black and White Fantail (*R. leucophrys*). We took for identification the Brown Honeyeater (*Stigmatops indistincta*), a very lively bird in its movements and a beautiful songster. Apostle-birds (*Struthidea cinerea*) were in many parties. Red-capped Robins and Rufous Whistlers (*Pachycephala rufiventris*) were common. On our way back along the river we noted a party of Little Cuckoo-Shrikes (*Graucalus robustus*).

After lunch and a rest we went out into the scrub over the river, passing first through a belt of open forest of Pines, Mulga, and fine tall Moreton Bay Ashes. In an Ash tree a Whistling Eagle had its nest at a safe height. In the scrub we noted Little Thornbills (*Acanthiza nana*); a pair were working at a half-finished nest in an *Eremophila Mitchelli;* Red-winged and Ring-neck Parrots, Yellow-throated and Noisy Friar-birds, Noisy Miners, Brown Flycatchers, and Willy-Wagtails. Greenies were numerous, and as usual were bullying every other bird of their own or smaller size. A pair of Orange-winged Sittellas were seen building high up on a dry branch of a Moreton Bay Ash. A pair of Kookaburras and a Tawny Frogmouth were disturbed from the trees on the side of a ridge.

During the night, which was calm and beautifully moonlit, after an eclipse had passed over, we were serenaded by Boobook Owls. One we called up to the trees over our camp, where he remained calling or replying to our calls till we dozed off. There were several others calling along the channel of the river, and we found that individuals varied much in their notes.

We made an early start next morning back towards Charleville. Regaining the road we soon pulled up at a paddock where there was a fine lot of flowering *Eremophila maculata* amongst Bimble Box, Ironwood, Gidgee and Mulga. Honeyeaters feeding on the honey-bearing blooms of the Eremophila were numerous, and of the following species: — Friar-bird, Little Friar-bird, White-plumed Honeyeater, Blue-faced Honeyeater, Brown Honeyeater, and Spiny-cheeked Honeyeater. We also noted Brown Flycatchers, Restless Flycatchers, and Spotted Bower-birds. Resuming our journey we pulled up at the patch of Ironbark scrub and made a search of it, but found little of interest apart from the plants. We called upon a few people and replenished our supplies in Charleville, and took the westerly road towards Adavale. This road passed at first some open forest land with fine Moreton Bay Ash, Ironwood, Gidgee, and Bimble-box trees, with Pines that looked as if they had been cultivated. We went on through alternating Gidgee and Mulga scrub, with Bimble-box as the dominant Eucalypt, Yapunyah coming second. We passed over the gravelly elevation which served to separate the waters of the Paroo from those of the Warrego. It was evening before we reached the long Ambathala waterhole, which was kept full by a bore stream, and was covered with water weeds. Along the banks were many young red-gum trees, Coolibah (*E. microtheca*), *Acacia stenophylla, Eremophila bignoniæflora,* and *E. longifolia. Myoporum deserti* in flower formed a small scrub back from the waterhole amongst the Bimble-box, and, farther back still, was the edge of a thickly growing Gidgee scrub.

On the following morning Dr. Chenery and I went into the Gidgee scrub which was thick, and without undergrowth or herbage, the ground being dry and covered with dead leaves. For some distance we neither saw nor heard any birds; then the Little Thornbill (*Acanthiza nana*) was detected, and later the Chestnut-tailed Thornbill (*Acanthiza uropygialis*), Black-backed Wrens (*Malurus melanotus*) next attracted our attention, a male just completing his moult, and two females; and soon after we saw another party. We met with a pair of Sittellas (*Neositta chrysoptera*) and a family of White-browed Tree-Creepers, Grey Thrushes (*Colluricincla harmonica*), and Rufous Whistlers

(*Pachycephala rufiventris*). The Brown Honeyeater (*Stigmatops indistincta*) was again seen, and its song admired, many notes reminding one of those of the Reed-Warbler. Red-capped Robins, Friar-birds, Spiny-cheeked Honeyeaters, and the Crested Bell-bird (*Oreoica*) were found in more open scrub. We decided to go on, ran up to the station, and then picked up the Adavale road which ran through thick Gidgee and Mulga scrubs. We saw very little bird life, as this stretch was very dry.

When we began to climb up the ironstone-gravel country of the range dividing the Paroo from the Bullo River, the vegetation began to improve. We pulled up at a gully leading into the scrub. This was at first moist, with many flowering plants and a fern growing in it. The scrub was very thick, Mulga and Gidgee, with an under-scrub of *Eremophila Latrobei.* The ground was clothed in the moister places with lavender daisies and a large yellow everlasting. A *Tecoma* was growing strongly over the trees and flowering freely, with large cream-coloured flowers. On reaching the top of the divide we found the scrub looking well, and more varied. A climb down some steep cliffs on the north side of the road took us into thick scrub, which seemed to support very little bird life. Wallabies were plentiful, and we found their shelters in small caves in the sides of the cliffs. The trees here are *Eucalyptus Thozetiana, E. Morrisi, E. ochrophloia,* Wilga, Mulga, Gidgee, *Eremophila Mitchelli, E. oppositifolia, E. alternifolia, Cassia Eremophila,* and *C. artemisioides,* and many smaller shrubs. Of birds we saw Chestnut-tailed and Little Thornbills, Harmonious Thrushes, Spiny-cheeked Honeyeaters, Red-capped Robins, Grey Fantails, and Grey-crowned Babblers (*Pomatostomus temporalis*). On this range a different species of Dodonœa (*D. petiolaris*) was growing, with large bladder-like seed-vessels showing the same range of colours as other members of the genus. As there was no water on the range we went on to find a camp on the nearest creek, following it up and down from where the road crossed it till we found a sufficient waterhole.

Early on the following morning we went back on to the range as I thought it a likely spot to find the Chestnut-breasted Groundbird (*Cinclosoma castaneothorax*). After a prolonged and fruitless search we had determined to go on when our driver drew Dr. Chenery's attention to a bird which was walking leisurely across the road. He lost no time in bagging the specimen, which proved to be an adult female of this species. Looking south from the road an extended view was obtained over a sea of scrub down the length of the range dividing the two rivers. In this the birds will have a safe harbour for many years to come.

(*To be continued October, 1924*)

Seeking Rare Parrots

By A. H. CHISHOLM, C.F.A.O.U., Sydney.
Vice-President, R.A.O.U.

Why is it that the Parrots of Australia, as a group or as species, have not been closely studied in their wild state? Is it because their adaptability to confinement tends to make us regard them as semi-domesticated birds? Or does the explanation lie in the fact that their breeding-habits are difficult to follow, the nests of most species being in hollows, usually high in trees?*

Whatever be the reason for our relative indifference to these birds as portion of our *free* avifauna, the challenging truth remains that the Parrots of Australia are beautiful in colour, graceful in form and flight, and intelligent above the generality of the world's birds; wherefore, they have a distinct claim on the patriotism of Australians. "No group of birds," wrote John Gould, some seventy years ago, "gives to Australia so tropical and foreign an air as the numerous species of this great family, each and all of which are individually very abundant." I do not, at the moment, wish to labor a point previously made in these pages† that many species of Parrots are failing alarmingly. Let it be re-emphasised, however, that field-study of the "Ground" and "Grass" Parrots in particular is earnestly to be desired—if only to strengthen our historical records in future years. What, for instance, have we to bequeath of the life-histories of the score or so beautiful species, now so ravaged, contained in the genera *Polytelis, Psephotus, Neophema, Pezoporus,* and *Geopsittacus*? Have we the year-round story of any of these, or, indeed, of any other species of Parrot, Lorikeet, Lorilet, or Cockatoo? I think not.

Actually, it is an anomaly (and rather a pretty one) that the Parrot of whose history we have the most concrete record—historical, present-day, pictorial—is one of the rarest of them all. I refer, of course, to the Paradise or Scarlet-shouldered Parrot (*Psephotus pulcherrimus*), concerning which Mr. C. H. H. Jerrard added much to our knowledge.‡ But in this case there was the advantage attached to a low nesting-site, added to the fact that the observer lived in the district. Had Mr. F. L. Whitlock been a resident of the area where the Night-Parrot was reported§ is it not possible that instead of merely securing traces of the bird, he may even have found the long-lost species nesting? Time and chance mean even more than good observation in these researches; Gould himself recognised the point when he asked those having "favourable opportunities" to watch for the Night-Parrot.

---

* Six Australian Parrots, including two of those dealt with in this article, nest on the ground or in hillocks.

† "Emu," vol. XXII., p. 16.

‡ "The Lost Paradise Parrot": Chisholm; "Emu," vol. XXII., p. 4.

§ "In Search of the Night-Parrot": Whitlock; "*Ibid*," vol. 23, p. 248.

All this brings me to further observations on rare Parrots in Queensland. Having, after some five years of intermittent effort, attained an objective with regard to Australia's most distinguished *Psephotus,* I turned attention to a very different member of the sub-tropical *Psittacidae,* to wit, the little-known Lorilet (Fig-Parrot) with the red face.

WHAT OF THE FIG-PARROT.

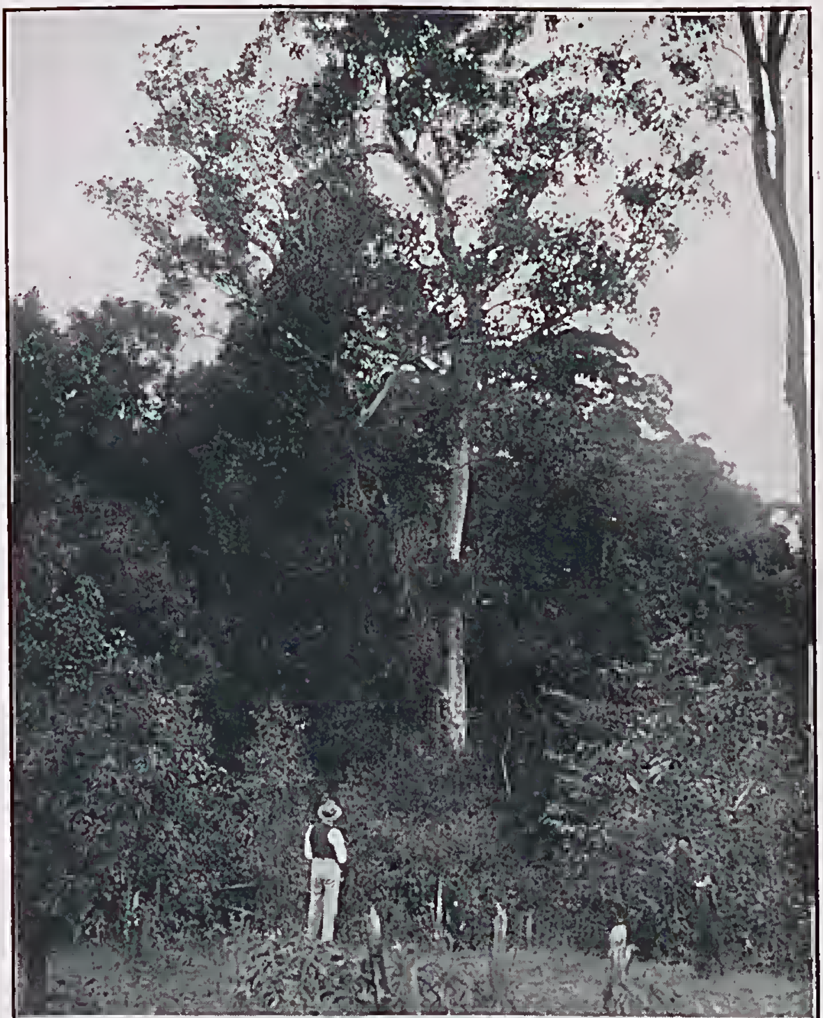
Back in the year 1866 one Eli Waller, a bird-dealer in Brisbane, sent to John Gould specimens of a new Parrot, together with a request that the species should be named after Charles Coxen, member of the young Queensland Parliament, Gould's brother-in-law, and one who had done much to promote the study of ornithology. Waller's request was acceded to, and the dapper little bird became *Cyclopsitta* (now *Opopsitta*) *coxeni,* the Red-faced Lorilet or Fig-Parrot. In his notes upon the species Waller pointed out that he first heard of it from a sawyer working thirty miles from Brisbane, who had shot a few in the jungle to make a pudding. Finding the birds strange, the sawyer took some to the Edward Street bird-dealer, who later saw live specimens of the Fig-Parrots in "the large scrubs of the mountainous district about forty or fifty miles north-west of Brisbane," which had then been "little visited by Europeans." There the tiny but beautiful Parrots (their colors being green, red, yellow and blue) crept about the branches of the huge fig-trees, feasting on the rancid fruit, upon which they seemed entirely to subsist. Their presence could be detected only by falling refuse; for the rest, they were "silent as death" while in the trees, and uttered only a faint "Cheep-cheep" when flying off.

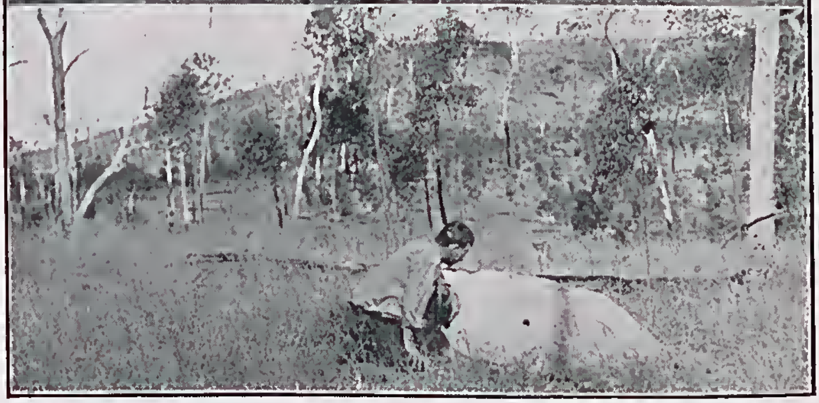
It is long since Waller's few notes were written, but even at this date (a human lifetime later) they represent almost all we know of the pigmy Parrot of the red face. Only one or two living naturalists have ever seen the bird, and that many years ago; both Mr. R. Illidge and Mr. J. O'Neil Brenan, of Brisbane, told me they saw a few, at different times long past, running mouse-like about the fig-trees of the Blackall Range; and Mr. A. J. Campbell records|| having seen a single example shot in the Richmond River "scrubs" of New South Wales in 1891.

What had become of the Fig-Parrots? This question presented itself in 1922, after the Paradise Parrot problem had been adjusted. The diminution in the numbers of Grass and Ground Parrots could be explained in a measure; but there seemed no good reason why the Fig-Parrots, birds of the tree-tops, should not still be fairly numerous. True, many of the big "scrubs" had gone, but others remained in almost a primeval state, with hundreds of accommodating fig-trees. Moreover, that other Fig-

---

|| "Nests and Eggs of Australian Birds," p. 599.





Above: Haunt of the Blue-faced Lorilet in a tropical Fig-tree.

Below: Entrance to nest of the Paradise Parrot in mound of White Ants (*Termites*).

NATIONAL MUSEUM MELBOURNE

Parrot, the blue-faced species of the far north (*O. leadbeateri*) had been reported in recent times, and its eggs secured. For all that, however, we could find no traces of Coxen's bird, much less of its nest and eggs. The elder naturalists missed the species from places where they knew it of old, and we younger men could not locate the bird in any of our numerous jungle excursions.

Having these points in mind, I was a little surprised to receive, in reply to an inquiry launched through the Brisbane *Daily Mail,* information that the Red-faced Fig-Parrot was still fairly numerous in the "scrubs" of the Blackall Range, an area not far from the type locality. My informant, Mr. Charles Benfer, intimated that the Fig-Parrots—"lovely little birds," he termed them—were very quiet and difficult to locate. They lived solely on figs when the fruit was ripe, but he had seen them eating "wild cherries" at other times. Just then (May, 1922) there were not many of the birds about, he said, but others were expected back in August, the idea being that most of the birds had gone north for the winter. Mr. Benfer added that the nests were to be located in the hollow branches of trees.

That is all I can offer regarding the present position of the Red-faced Fig-Parrot, the only Australian Parrot whose eggs have not been taken, and of which Mathews wrote (1917): "Apparently nothing whatever is known of the life-history of this bird." In the spring of 1922 I started north from Brisbane with the intention, chiefly, of seeking the Fig-Parrot, the Paradise Parrot and the Green Ground Parrot. A healthy ambition for one trip, was it not? Difficulties of time arose, however, and the Lorilet locality had regretfully to be excised from the itinerary.

THE GROUND-PARROT IN QUEENSLAND.

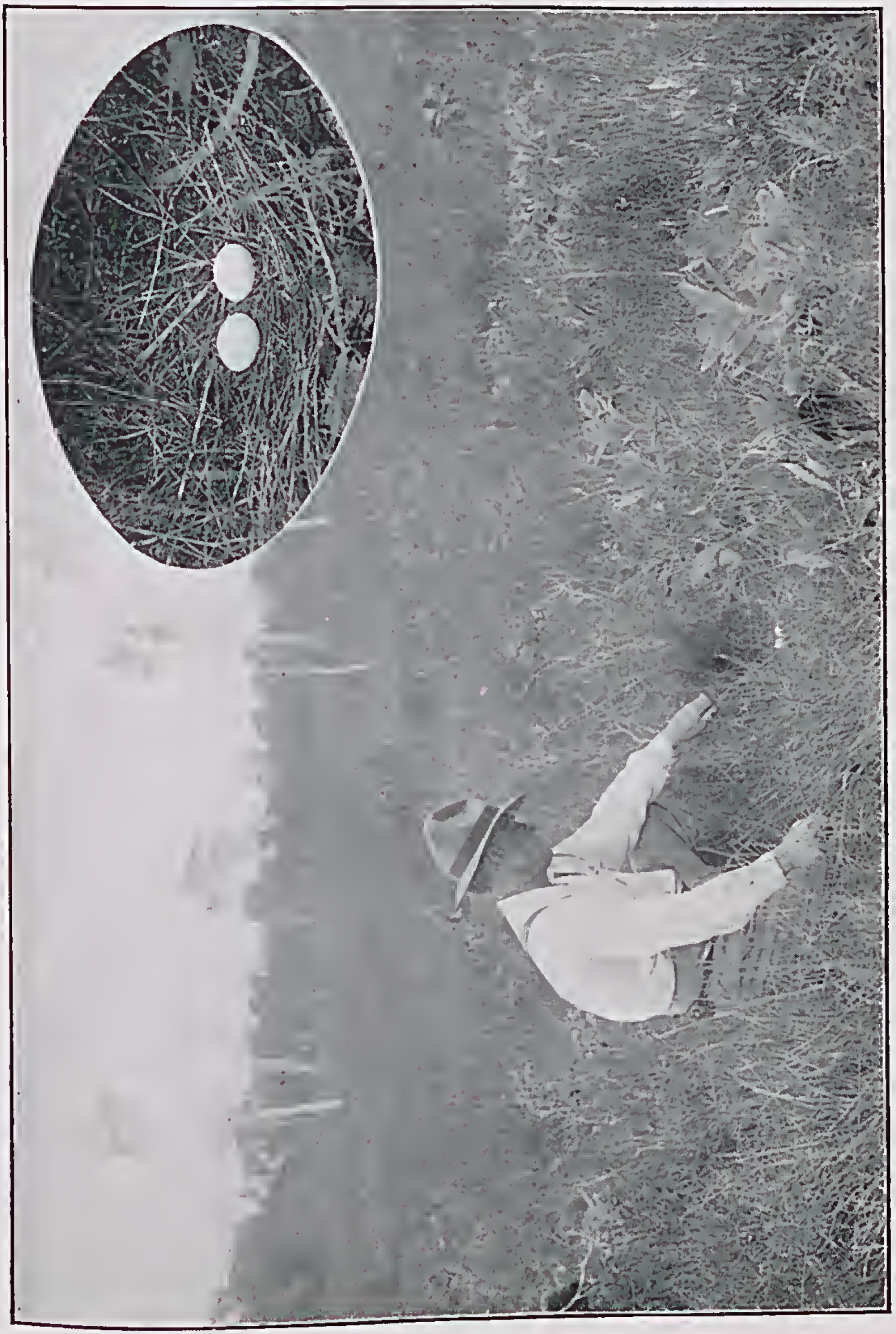
Commencing with Gould, who found the Ground (or Swamp) Parrot "diffused over the whole of the southern portions of Australia, including Tasmania, wherever localities exist suitable to its habits," there have been various short notes written from time to time concerning the strange Parrot known technically as *Pezoporus wallicus* (also as *P. formosus* and *P. terrestris*). The species had, indeed, been known as early as 1792, and up to about fifty years ago it was frequently seen near Sydney, notably on the precise spot (the populous suburb of Kensington), where these lines are being written; though in recent years it has everywhere been regarded as a very rare bird. At no time, however, has anything definite been set down regarding the presence of the species in the north of Australia; in bird books generally Queensland is not included in its range. (A. J. Campbell uses a query in adding South Queensland to the distribution of *Pezoporus,* whereas the books of A. J. North, Lucas and Le Souef, J. A. Leach and G. M. Mathews do not refer the species to Queensland at all.) Nevertheless it *is* there, still distributed sparingly in suitable areas up as far as (probably) central Queensland.

Mr. Illidge and Mr. Brenan had told me of their meetings with the bird in the vicinity of Brisbane long ago, but settlement, apparently, had driven it right out of south-eastern Queensland. Accordingly, the knowledge that a Parrot answering to the description of *Pezoporus* was to be observed some 200 miles *north* of Brisbane was a strong invitation to travel. We did not visit the spots specified on the mainland, but many sprightly hours went by in the haunts of the species on Fraser Island. "We" included Messrs. E. H. F. Swain, Queensland Director of Forests, Walter Petrie, forester, and F. C. Epps, forester; and Fraser Island may be identified as the great mass of afforested sand, some eighty miles in length and 700,000 acres in extent, lying a few miles off the coast of central Queensland.

Following a Bird Day ramble (October 20) with the children of half a dozen schools combined in the Goomeri district, I joined the foresters at Maryborough, and together we went, on a forestry boat, the twenty-five miles or so down the Mary River and across Hervey Bay to Fraser Island. Here it will not be out of place to interpolate that more keenly intelligent foresters than Messrs. Swain, Petrie and Epps would be difficult to find. Mr. Petrie—as befits a son of Tom Petrie, the famous confidant of the Queensland aborigines—is also a sound bird-observer and a really remarkable imitator of bird-notes. It follows, then, that the three joined in the search for *Pezoporus,* a job negotiated on horseback. Further, it has to be recorded that the Director of Forests registered the first success.

We were riding, spread out, through one of the extensive banksia-skirted dry swamps that abound on the island, when there came a call that two Parrot-like birds had risen and dropped again. Following, we soon flushed two birds, which rose with an eddying, zigzag, Swallow-like flight, alternately gliding and beating the wings rapidly, travelled some fifty yards, and then dived into the grass. There was a display of mottled green and yellow as they flew. That flight: what an extraordinary motion for a Parrot! Gould had remarked on the great speed of the bird on the wing, and the fact that it "frequently makes several zigzag turns in the short distance of a hundred yards," but—just as you do not know coral until you cut your foot on a reef! —a bald description hardly prepares the observer for what this strange Parrot has to offer when in full flight.

On two other days we flushed Parrots in the same locality, but the closest hunting failed to reveal a nest. One find looked promising, but it was the nest of *Phaps elegans,* the Brush Bronzewing-Pigeon, holding two eggs, nicely tucked away under a tuft of grass. The Parrots may have been breeding, but the



Lower: Nest of the Brush Bronzewing, Fraser Island, Queensland. *Upper*: Enlarged.

Photo. by A. H. Chisholm, C.F.A.O.U.

NATIONAL MUSEUM MELBOURNE

search was really akin to the old affair of the needle and the haystack.

Of the voice of the species (described by A. J. Campbell as a feeble twitter, and by the late F. W. Andrews, 1883, as "very beautiful, sweet notes") we heard nothing. Nor were we successful in our amiable endeavour to cause the Parrots to perch in the stunted banksias that fringed their swamp. But we did cause one to achieve something of a record, or at least give a fine display, by flying fully two hundred yards in full view. That was a bird which had deluded Mr. Petrie into believing that it could be caught. When flushed it dropped only twenty yards away—dropped with the amazing headlong dive of the species—upon which the ambitious forester ran at once to the spot. Then we had an indication of what extraordinary speed the bird can develop when running through a forbidding tangle of grass; in a matter of seconds it had got several yards away from the spot where it alighted! Flushed a second time, it rose on strong wings and eddied swiftly, again alternately beating and gliding, away and away to the other end of the swamp. Presumably that zigzag flight, which never carries the bird more than a few feet above the grass, has been cultivated by the desire of the fast-flying Parrot to pick the best landing-place. A remarkable bird![*]

Whether any distinctions from the type *Pezoporus* have evolved with these island birds is a matter for speculation. Probably, though, the differences, if any, are not worth bothering about; at any rate, not worth the lives of any of the handful of Ground Parrots on the island. The species is believed to be stationary, which makes it likely that these island birds have long been isolated; but there are others on the mainland opposite to link them with the southern birds.[†] *Pezoporus*, by the way, has never been noted on that other great sandy island, Stradbroke, off Brisbane. But Fraser Island is altogether a more hospitable island for birds; we were never short of entertainment there, whether in the dry swamps, the *Banksia* country, the creeks and mangroves, or the semi-jungle areas, fringed with great eucalypts (tallow-wood and blackbutt) that rise so strangely from the sand.

---

[*] See also Whitlock's account of "Pezoporus" in West Australia, "Emu," vol. XIII., pp. 203-5.

[†] Mathews admits four sub-species without having knowledge of these island birds. It is interesting in this regard to quote the same author on the Night-Parrot. He regards the Geopsittacus as "an evolution product of the Pezoporine stock produced since the separation of Tasmania from the mainland, and by the environmental stress of living further inland than the mainland Pezoporus." But surely "environmental stress" has long prevailed with isolated bodies of Pezoporus generally.

MEETING THE PARADISE PARROT.

A few days after leaving the charming birds of Fraser Island, I was in the Burnett district (south-central Queensland) with Mr. Jerrard, seeking the Paradise Parrot. It was not an easy occupation, in the heat and drought of those sparsely timbered areas. Many items of interest claimed attention on the first day out, but the only indication of the beauty-bird's presence were the old mound (the one that figured in *The Emu* photographs) now broken up, and one or two others that bore marks suggesting that the birds had been experimenting. Next day (1st November) we again drove seven miles to the spot, and divided forces in order to roam the whole of the immediate district thoroughly.

It was my last day; at dawn next morning I had to leave for Brisbane, there to bid good-bye to Queensland—and possibly also to the chance of ever seeing the much-sought bird which Dr. Greene long ago described as "the most beautiful Paroquet that exists." Imagine, therefore, how much of anxiety mingled with the hope that animated that hunt! The morning's search was fruitless. Then came the lunch adjournment. At one o'clock I had emerged from a paddock on to the straggling bush road, and was gathering sticks for the fire. Suddenly, almost sub-consciously perhaps, a "new" bird-note caught my ear, and, looking up sharply, I saw a bird about the size of a small Leatherhead fly into a tree 150 yards off. A sprint down the road followed. What a relief it was, then, to see a female Paradise Parrot perched contentedly aloft! There was no mistaking the slim, graceful form. Presently she flew into the next tree.

A moment later I gasped with delight, "Oh, you little beauty!" For there was the male Parrot, the gorgeous red of his underparts gleaming in the midday sun. He was sitting quietly on a dry branch of the tree, about thirty feet up, and did not appear unduly disturbed when I cruised about in order to get a glimpse of his pretty red shoulder. Indeed, the only effect of the intrusion was to cause him to cease a pretty, plaintive pipe, not unlike that of a young bird, and perhaps to sit up a trifle straighter. Mr. Jerrard came along then, and shortly afterwards the two Parrots flew fifty yards away and settled lower. The little lord dropped into the grass, while the lady, more cautious, emulated him to the extent of descending to a sapling. They rose as I approached too closely, and there was a flash of glowing colours as both flew off across a dry creek. Following, I got within twelve yards of the pair, and remained there for about fifteen minutes, admiring the beautiful color-scheme of the male and the ease with which both birds stripped the grasses.

The method of feeding was to seize a grass bent near its base and run it through the bill until the seed was reached. In odd cases the grass-stem was thick; then the bird would climb on and bend it down with weight. They kept fairly close together all the time, and did not speak. Eventually, there was a noise in the distance, whereupon the male gave a sharp little call and the two flew off in company, disappearing among trees one hundred yards away. Following again, I saw no chance of locating the female (brown and grey except for a faint red patch on each wing), but had no difficulty in regaining sight of the male. Strange that beauty should be so indiscreet! He sat moderately still in an exposed position for half an hour, and then moved up among the leaves of the iron-bark in which he was perched. (Presumably these birds eat galls among the leaves, just as do the Crimson Rosellas.) The next move was again at the call of the male, the pair flying into grass thirty yards off. At this stage I had an excellent view of them feeding for half an hour or so. Here two Noisy Miners swooped at the dainty pair, one at each. The only protest was the short, sharp, musical whistle, "Queek!" rather like one of the notes of a Logrunner (*Orthonyx*). The incident suggested hoodlums attacking aristocrats. No indication of going to a nest was given by the Parrots (though termites' mounds were numerous enough); so, to bring matters to a climax, I moved to within ten yards of the pair. The two looked at me steadily, the male with a touch of hauteur, the female rather timidly; then they flew aloft again.

And there I left them. The lunch-billy had been boiling for three hours by this time, but—well, *Psephotus pulcherrimus*, wrote Gould, "is one of the most lovely of the *Psittacidae* yet discovered!"

On January 11, 1923, Mr. Jerrard wrote me: "The Paradise Parrots you studied that day while the billy boiled are still constant to the vicinity. They have been seen several times by myself and others, but no nest has yet been located. I have trustworthy information that another pair has inhabited for two years at least a spot ten or twelve miles distant from the domain of my pair."

On February 23, 1923, Mr. Jerrard further wrote: "None of the ant-hills about last year's nesting-site has been used this season. A week ago, however, I saw a pair not far from one of the nesting-mounds we visited. I surmise that they have nested or are nesting in the vicinity. In reading in your book, *Mateship with Birds*, the chapter on 'The Aristocracy of the 'Crest,' I paused at the remark on the Bell-bird's 'confirmed habit of hopping along roadways' being a reason for its being fairly well-known by sight. How applicable, thought I, is that remark to another bird which may well feel the desire to be seen—the Paradise Parrot! Ever since I first met the latter (on the road) I have found them to be remarkably addicted to the roadside. To this habit I attribute my success in observing them. You will recall how, after scouring the country all the morning, we came back to find them on the road. I had had the same experience previously. In fact, I can at present recall only one occasion (out of perhaps a score) when I saw them anywhere but on the road. On the last occasion, a week ago, they were right on a mailman's track. Now, the point of all this is: May not such a fatal habit—weakness, if you like—in a bird so conspicuous and so coveted, have been a material factor in its decimation?"

Later reports by Mr. Jerrard indicate that no further nests have been found, but suggest that more than one pair successfully bred in the district during the last two seasons.

The Ground Parrot in Eastern New South Wales.

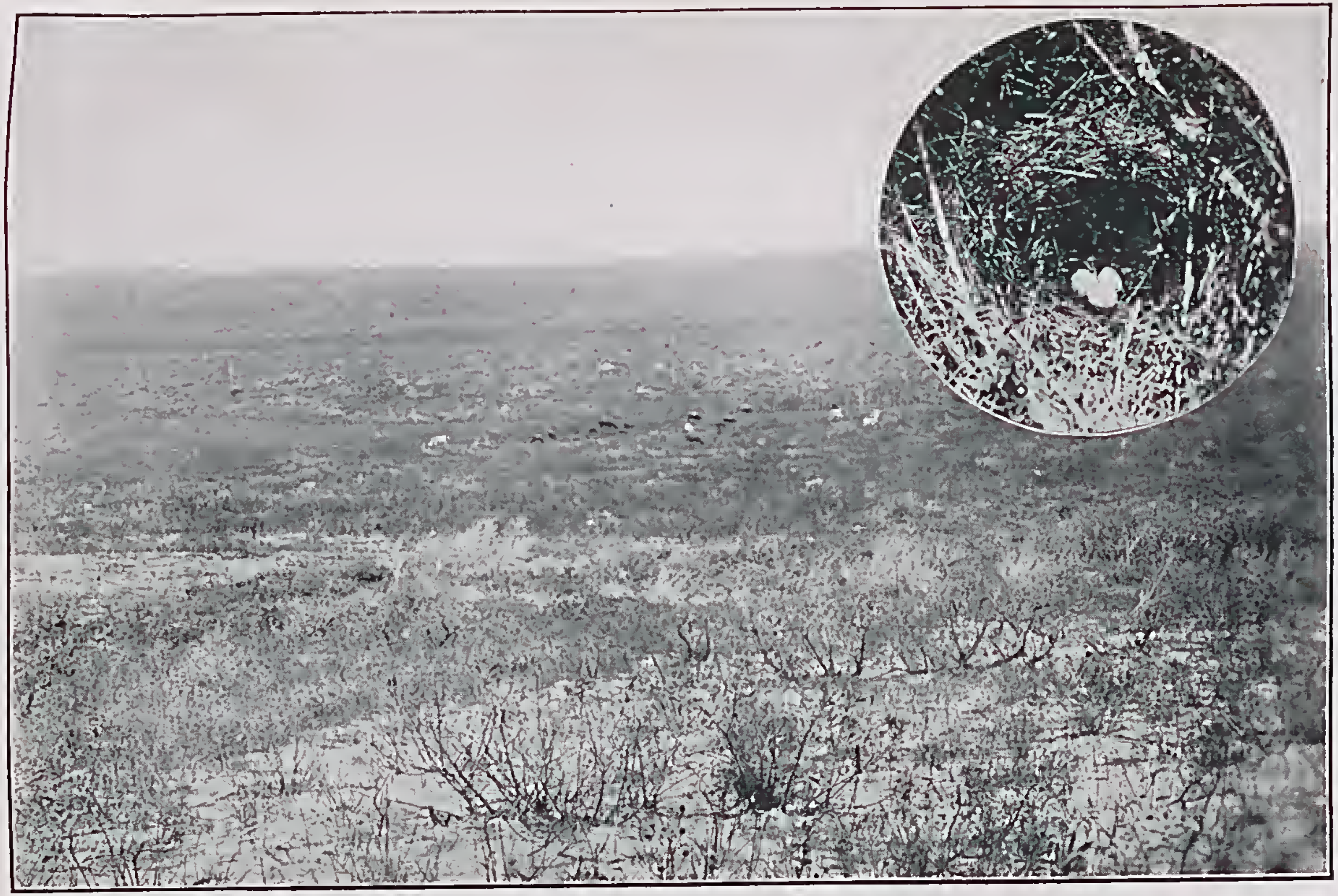
By J. F. H. GOGERLEY, R.A.O.U., Ellerslie, Wallis Lake, New South Wales.

It was very interesting to read in the January issue of *The Emu* Mr. Edwin Ashby's notes on the rare Ground-Parrot (*Pezoporus wallicus*). These were made more interesting to me by the fact that I had discovered two nests with eggs of this rare Parrot on the 24th November last. It was after a long search, extending over three years, that I was at last able to identify the Ground-Parrot, and to discover the nest.

Having seen odd birds at rare intervals and having heard that they had been seen by others, I was loath to believe that this Parrot was extinct on Cape Hawke Peninsula. The fact of the Parrots being numerous many years ago made me think that if an exhaustive search were made, some of them would be found.

During the camp-out of the R.A.O.U. at Wallis Lake, in 1921, Dr. D'Ombrain, Mr. W. B. Alexander, Mr. N. Chaffer, and I made a close search of the southern end of the Peninsula, but without success. Shortly after this I saw a Parrot on the marshy country at the north end of the moor, close to the Cape; but was not able to identify it, owing to its rapid disappearance from sight.

In November, 1922, Mr. Sid. W. Jackson and myself spent two days in a further search, and found remains of nests, where a recent bush fire had swept the moor. The burnt nests were mostly old, with the exception of one which contained small pieces of burnt egg-shells. We also found two fresh nests; one had been deserted owing to the fire burning up close. The other had been made after the fire had burnt out; it was not completed. The few birds on the moor have apparently made their nests for years on the edge of a small swamp, half a mile long and a few hundred yards wide. Nowhere else did we see any signs of nests. We were not able to identify the nests then,



The haunt of the Ground-Parrot. The nest is to the left of the cattle in the middle distance.

Upper : Nest and three eggs enlarged.

Photos. by Sid W. Jackson and H. F. Markell

NATIONAL MUSEUM MELBOURNE

but I was almost sure that they were the nests of Ground-Parrots. Mr. Jackson thought not, but he said he had never seen the nest of *Pezoporus wallicus*, and could not say for certain what the nests were.

In November, 1923, I determined to make another search around the small swamp, as we had narrowed the field of search to that one locality; but I did not entertain much hope, owing to the fact that a new road had been formed across the moor, and that the teams drawing the gravel and metal had cut the place up in all directions. But after a hunt of hours over the other parts of the moor, I decided to try the swamp, cut up as it was. Imagine my delight when, close to where we had seen the nest of the year before, which had been destroyed by a cart wheel, I flushed a Ground-Parrot from a nest which contained three eggs. The bird flew only a few yards, and I was able to identify it easily; the orange spot on the forehead being very conspicuous, also the yellow and black bars. I had not the heart to shoot the lovely little bird to obtain the skin.

I then searched further down the swamp, and discovered a second nest, with two eggs. This nest was rather different from the first in shape. But this, I imagine, was owing to its being placed close to a small paper-bark tree, in a thick bunch of rushes. It was rather dark, and made a bad subject for photographing, whereas the first nest was in a bed of rushes and asparagus fern, and was fairly open to the light, as the photograph shows. A remarkable fact was that the birds of the second nest had carried about twenty stems of asparagus fern for fifty yards or more to place at the back of the nest.

The discovery of the birds and nests shows that some birds of this species still exist on the Peninsula. But I fancy that there are only a few pairs of the birds left, and that in a few years they will certainly disappear. As Mr. Ashby says, the wild cats and bush fires are responsible for their becoming extinct. The bush fires are, I think, the main factor in destroying our ground birds, and, as the fires occur every year, the birds have no chance. Evidently the blacks were careful with fires in their time, as the bush thirty years ago showed no signs of the ravages of fires, whereas the bush in most localities has been completely altered by fires during the last thirty years. While searching the burnt areas, I saw many nests of Swamp Quail and Rails, with many burnt shells and bones of young birds, so that one can imagine how many birds are destroyed during a big fire on open heath or plain country.

The Ground-Parrot must have been distributed over much of Australia, as is proved by the species being taken in Western Australia, South Australia, Victoria, New South Wales, and Queensland.

Each nest was made in a hollow scratched in the sand. This was filled with dry leaves, and a semi-domed nest made of stalks of asparagus fern and rushes lined with long thin grass. The first nest was placed between two tussocks, and the second nest between a small paper-bark tree and a tussock. The foundation of the burnt nests could be plainly seen, a small depression between the burnt tussocks. Many nests of Swamp Quail were burnt, but there were only the egg-shells to show where a nest had been; and in the case of the bush-rats' nests, only a small heap of white ashes was left. But one could not mistake the Parrots' nests on account of the small hollow in the sand.

The nests were perfectly open, with entrance on one side, and a high wall at the back, giving the nest a dome-like appearance. They measured ten inches by five inches; egg-cavity, 4in. x 4in. The long dry grass that formed the lining was coiled right round the nest, forming the egg-cavity. The eggs measured 1 x .82 inches, and were uniform in size. The fact that Mr. Wells kept the birds for years in an aviary suggests the possibility of breeding this Parrot in captivity, thus preventing its becoming extinct. This could also be done with many other birds that will become extinct otherwise.

I am much indebted to Mr. H. F. Markell, of Sydney, for the pictures of nests and eggs. The photograph of the moor was taken by Mr. Sid W. Jackson, R.A.O.U.

Mr. Andrews, as quoted in Mr. Ashby's article, mentions the sweet notes of this Parrot as a perfect octave. I have heard the same notes late in the evening when riding many years ago on the Cape Hawke moor. Mr. A. Wells, of Newcastle, had a Ground-Parrot for four years in his aviary, and mentioned the sweet dropping notes. This bird was taken while young on the heathy country north of Stockton. Dr. Brooke Nicholls reported seeing the Parrots at Marlo, in Eastern Victoria.

Mr. Ashby says in his notes, Part II., *The Emu*, Vol. XXIII., that, as the birds are disturbed by fires, they will move back to other districts. This would be true in some cases; but, on a peninsula like Cape Hawke, there is no escape for the birds from fire. Such areas of wild moor should be for ever reserved for the shelter of the Ground-Parrot, and other ground birds; and heavy penalties should be imposed upon persons wantonly starting fires on such areas.

Mr. Ashby's resolution, carried at the last congress of the R.A.O.U., *viz.*, "That all townships should reserve an area of 300 acres," would not, in my opinion, effect the purpose, as the country round such townships in many cases would not be suitable for bird life. A better plan would be that all permanent State Timber Reserves should be also reserved for bird protection. This would give large areas for sanctuaries for all species of birds and animals. Sanctuaries close to a town would always be open to disturbance, and most of our shy birds would not settle there.

I would also suggest that a bird sanctuary of one mile be made around all country schools. This would stop a lot of the nest-robbing by small boys. Also if members of the R.A.O.U. had the same power to prosecute as is possessed by members of the Society for the Prevention of Cruelty to Animals, it would enable members to stop much of the shooting during closed seasons. If additional copies of *The Emu* were printed and placed on sale at bookstalls, they would interest the general public, and inform them of what is being done by the R.A.O.U. and other societies. At present *The Emu* is not known at most bookstalls. A gentleman told me recently that he tried all the bookstalls in Sydney, but the officers in charge said they knew nothing of such a magazine, and even said that no such magazine existed. How can we expect the public to be interested while we are working behind a screen?

Notes on The Ground Parrot

By H. V. EDWARDS, R.A.O.U., Bega, N.S.W.

My acquaintance with the Ground Parrot (*Pezoporus wallicus*) began about the year 1884, at which period, though never apparently numerous, it might usually be flushed from the long coarse grass and tussocks which then covered most of the gullies and flats of the Kameruka Estate, in the Bega district on the far south coast of New South Wales. The bird also haunted the swamps, and was occasionally discovered among bracken on the hillsides, but kept mainly to the denser cover, unless disturbed and driven to take shelter elsewhere. It was most commonly found singly, although at times a couple of birds might be driven from the same patch of cover. This Parrot rarely flies far, and after covering a short distance in jerky, hesitating flight, plumps back into cover, much as a Quail does. During a day's Quail shooting a few Ground-Parrots were almost invariably flushed or were seen at times only a few yards in front of one's feet, running silently through the tussocks, as they are loath to take wing if they can escape by this means. These birds carry a strong scent, and dogs set them as they do Quail. On one or two occasions I found the dull-white eggs two in number, lying on bare, damp earth beneath the shelter of a tussock, without the slightest pretence of the formation of a nest. In those unregenerate days beautiful and always more or less rare birds like the Ground-Parrot were very commonly shot and added to the bag.

Personally I have never seen the Ground-Parrot perch—even momentarily, on tussocks or elsewhere, but Horace Wheelwright (the "Old Bushman") writing in the fifties of last century of the fauna of Victoria, says that he occasionally saw the Ground-Parrot perch on teatree scrub, and that he found the bird at times about swamps in which, in places, the water was knee-deep. The country in which Wheelwright made his observations lay at the furthest not more than forty miles from Melbourne. He also noted that pointers and other sporting dogs would set the Ground-Parrot. The crops of birds incidentally shot on the south coast of New South Wales contained seeds chiefly.

This Parrot was also found, at the period first mentioned, on the rich Tarraganda flats, quite close to the town of Bega, but during a long experience I have never met with or even heard of it on the much colder Monaro highlands immediately above the far south coastal districts. So far as the coastal districts mentioned are concerned the Ground-Parrot has long been but a memory of the past. To its practical—probably entire—extinction three causes contributed:—

First, the increase in numbers of the perfectly useless and terribly destructive European fox, introduced to this district, and probably spreading also into it from others about the late eighties of last century. This cunning animal must have played havoc with the eggs and nestlings of the Ground-Parrot, and no doubt also often stalked and seized adult birds as well.

Secondly, the advent and quick increase in numbers of rabbits, which penetrated over the Australian Alps to the Monaro district, and from it soon spread to the coastal districts below.

Poisoned wheat and other grains were at first used as baits for the destruction of the rabbit, and the Ground-Parrot, being mainly a seed eater, suffered greatly, in common with many other birds.

Thirdly, radical alterations in and destructiton of its natural environment, many swamps being drained and the tussocks and other coarse grasses eaten off close in consequence of heavier stocking, while other changes in the country, also destructive of the Ground-Parrot's natural sanctuaries, followed on the heels of closer settlement and the subdivision into smaller areas of the best agricultural and pasture lands. These three causes—but especially the two first, finally rang the death knell of the Ground-Parrot so far as the quarters under consideration are concerned.

But what to the writer seems strange (seeing that the Ground-Parrot survived it, though it may in part account for the fact that the bird has never at any time been numerous) is the circumstance that the grassy gullies and swamps in which it was most at home were always haunted in number by native cats (*Dasyurus*). These actively predaceous little animals, keen of scent, continually scoured the gullies and swamps, often in secluded places, by day, in quest of food, of which terrestrial birds, their nestlings and eggs, formed no inconsiderable part.

Yet in spite of these primeval natural enemies, the Ground-Parrot held its own. Owing to the direct agency of rabbit poison, and the fact that native cats (unlike the tiger cat, which prefers to kill its own meat) fed on the carcases of poisoned rabbits, these animals have themselves also become practically extinct in this district.

In conclusion, I may mention that, some years ago, a writer in the *Sydney Mail* stated that, in a certain quarter of New South Wales, where the Ground-Parrot then still existed, the birds had taken to nesting in hollows excavated in steep banks and cliff-faces affording spaces of soft earth sufficient in depth for the formation of tunnels. They are said thus to have escaped at any rate the ravages of foxes.

Discovery of a Breeding Place of Buller's Shearwater, Poor Knights Island, N.Z.

By R. A. FALLA, R.A.O.U., Auckland, N.Z.

Synonymy and References.

Puffinus bulleri, Salvin, *Ibis,* 1888, p. 354; Buller, Birds N.Z., vol. II., p. 240, pl. 41, fig. 2, 1888; Buller, Trans. N.Z. Inst., vol. 23, p. 42, 1891; Salvin, Cat. Birds Brit. Mus., XXV., p. 371, 1896; Anthony, *Auk,* XV., p. 38, 1898; Loomis, Pr. Cal. Acad. Sci. (3), Zool., II., p. 319, 1900; Buller, Suppl. Birds N.Z., vol. I., p. 101, 1905; Goodman, Mon. Petrels, p. 81, pl. 23, 1910; Mathews and Iredale, *Ibis,* 1913, p. 227; Loomis, Pr. Cal. Acad. Sci., 4th ser., vol. II., p. 146. 1918; Falla, *Emu,* vol. XXI., p. 206, 1922.

Puffinus zealandicus, Sandager, Trans. N.Z. Inst., Vol. XXII., p. 291, 1890.

Thyellodroma bulleri, Mathews and Iredale, Aust. Av. Rec., vol. IV., p. 50, 1920; Bent, U.S. Nat. Mus. Bull. No. 121, p. 101, 1922.

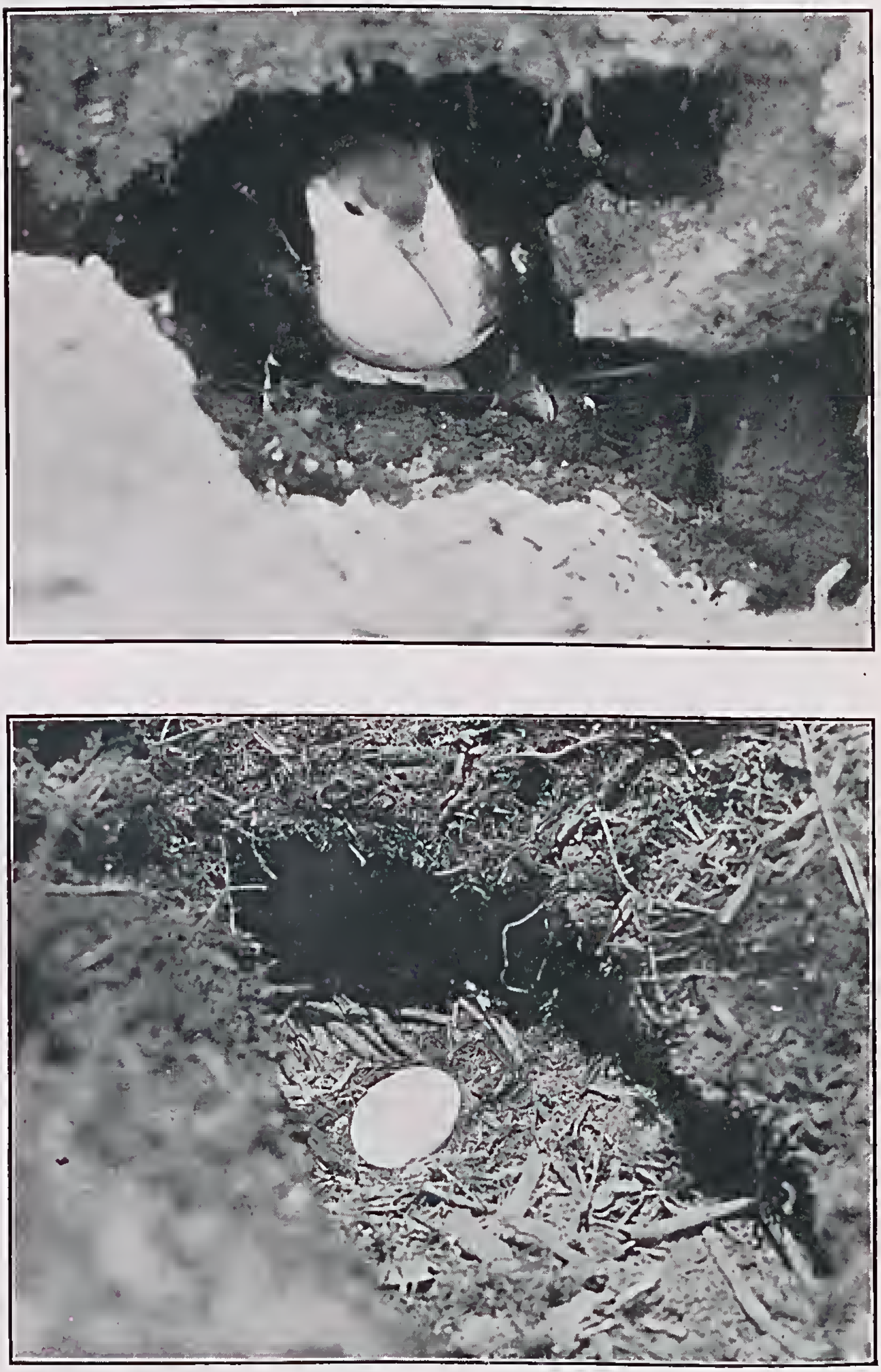
Description of Brooding Female.—Crown, neck and small wing coverts sooty brown; tail and primaries dark blackish brown, the latter paling to white on the fringe of the inner web; major wing coverts brownish grey margined with greyish white; median coverts and secondaries sooty brown margined with greyish brown; back and scapulars slate grey, each feather margined with brown; rump sooty brown, feathers tipped with white; upper tail coverts pale slate grey, tipped with white; under tail coverts white, the outer ones splashed with slate grey; throat, sides of face, foreneck, underside of wings, and all underparts pure white; feathers of lores slate grey tipped white, giving slightly mottled appearance; ear coverts slate grey. Irides blackish brown; bill bluish black, edge of mandibles bluish grey; inner edge of tarsi, of middle and inner toes pale fleshy white; webs flesh-white splashed with grey on outer edge and underside; outer edge of tarsi, of middle toe, and whole outer toe brownish black. Total length, 18 inches; wing from flexure 11.6; tail, 5.5; culmen, 2.1; edge of lower mandible, 2.2; tarsus, 1.85; middle toe and claw, 2.5.

I wish to express my thanks for much assistance in the preparation of this paper to the Hon. R. F. Bollard, Minister of Internal Affairs, for permission to collect specimens of both bird and egg; to Mr. W. R. B. Oliver, of the Dominion Museum, for consulting references which were inaccessible to me; to Mr. J. G. Myers, for several helpful suggestions connected with the paper; and lastly for assistance in the field to the promoters of the expedition, Mr. W. H. Hamer, Engineer to the Auckland Harbour Board, and Mr. W. M. Fraser, of Whangarei; also to Mr. H. G. Hamer, of Devonport, whose photographic assistance added much to the value of the records obtained.

Introduction.—In a country whose avifauna can boast of barely two hundred species, including sea birds, it might reasonably be thought that the last word had been said regarding the number of permanent breeding species on the mainland and islands closely adjacent. It is therefore an added pleasure to place on record an account of the breeding place off the New Zealand coast of Buller's Shearwater (*Puffinus bulleri*), a species which has eluded the attempts of ornithologists to find its home, since the first discovery of the bird itself, nearly forty years ago.

Through the courtesy of Mr. W. M. Fraser, Engineer to the Whangarei Harbour Board, and Honorary Inspector of the Scenic Reserve Islands lying off the north-east coast of New Zealand, the writer was given an opportunity, during December, 1923, of visiting the little-known group of the Poor Knights Islands, which lie about 80 miles north of Auckland and twelve miles east of the mainland, in latitude 35 deg. 30 min. S., and longitude 174 deg. 45 min. E. The two main islands lie close together, and extend from north to south over a distance of two and a half miles. Both are volcanic in origin, and present to the sea on all sides bold precipitous faces, with here and there a less vertical slope supporting dense vegetation. Everywhere the covering, whether of low forest, flax, thick rushes or scrub, is extraordinarily dense. Several smaller islets complete this part of the group, while three miles further south lie the inaccessible pinnacles of the Poor Knights Rocks, one of them conspicuous with a white cap of nesting Gannets.

Although these islands were visited and briefly described by Cook in 1769, they have remained practically unvisited since, their bare uninviting aspect from the sea having deterred scientists and pleasure-seekers alike. With the exception of an account by Dr. L. Cockayne of a brief botanical visit (Trans. N.Z. Inst., vol. 38, p. 351, 1905), no literature on the natural



Buller's Shearwater; *Above:* Bird in burrow. *Below:* Egg near burrow.

Photo. by R. A. Falla, R.A.O.U.

NATIONAL MUSEUM MELBOURNE

history of the group exists. Actually, the many rare and curious forms of animal life which are to be found there, would well repay further scientific investigation.

While much might be written of the abundance and tameness of the bird life of the islands generally, this may well be left for subsequent treatment, and the present paper confined to the one species under consideration, Buller's Shearwater.

The bird was first described by Salvin from a male example picked up by Buller in 1884 on Waikanae Beach, near Wellington. Since that time another half-dozen specimens have been taken in New Zealand seas, including two from the Mokohinau Islands, which lie about twenty miles to the south-east of the Poor Knights, and one recently by Mr. R. Stuart Sutherland at Cuvier Island lighthouse, another forty miles further south-east. The birds taken in New Zealand include the type in the British Museum, two in the Rothschild Museum, and one in the Dominion Museum, Wellington. In addition, sixteen specimens have been recorded from Point Pinos, California. The writer has occasionally found remains of this species washed ashore on both east and west coasts of the North Island, N.Z., and in this way has obtained three skeletons. Several observers, including Messrs. J. G. Myers and A. C. O'Connor, of Wellington, have found it common at sea off the northern coast at various dates, which seem to indicate that it is present throughout the greater part of, if not the whole of the year. The following records are available to date: February, April (Sutherland), August (O'Connor), September (Myers), October, November, December, January (Falla). Further observations are still required during the winter months.

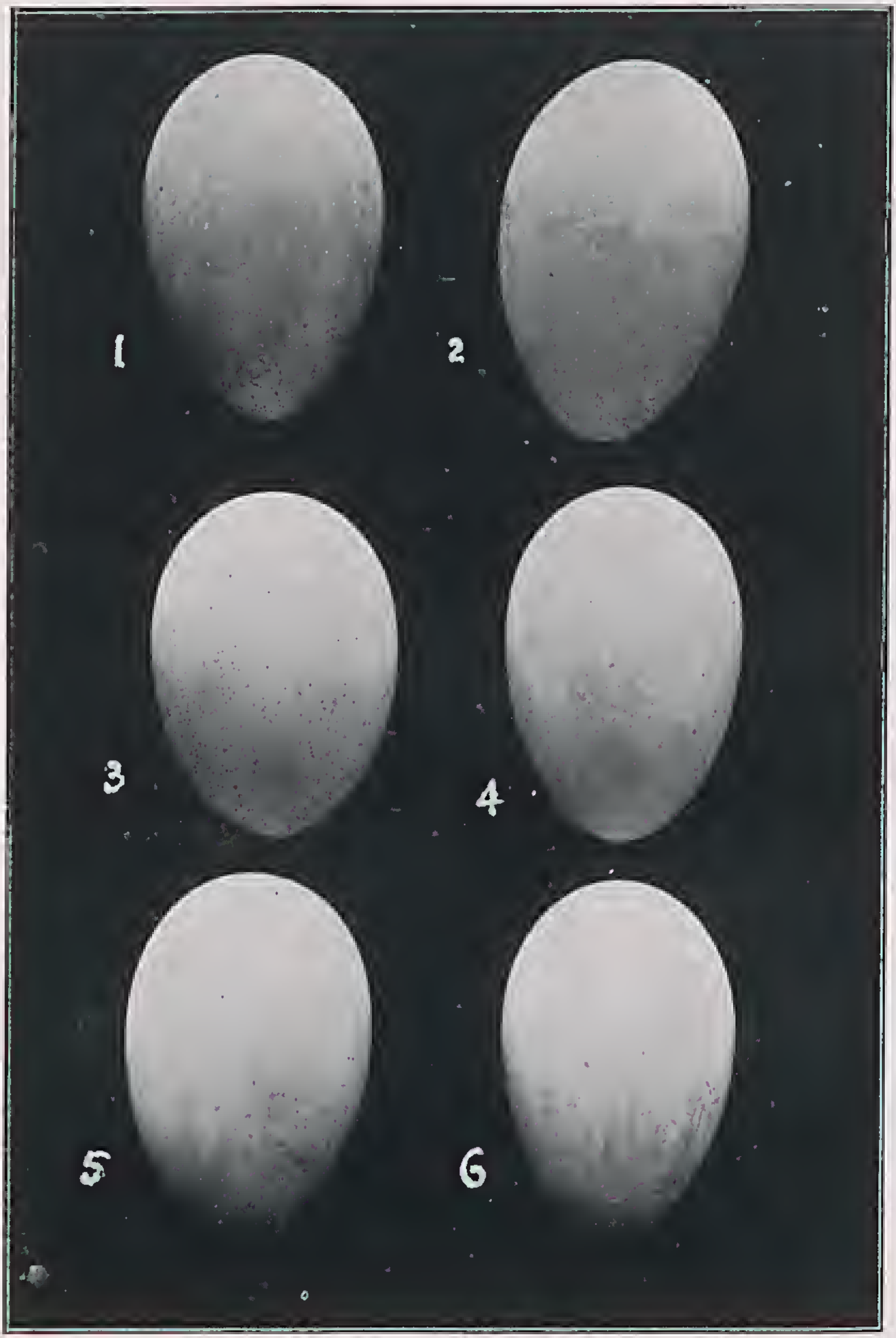
With regard to the egg of this species, Bent (U.S. Nat. Mus. Bulletin 121, p. 103) writes as follows:—

"I have been able to locate only one egg of this rare Shearwater. It is in the collection of Col. John E. Thayer, and was collected by William Bartlett on Mokohinu Island, New Zealand, on October 20, 1900. It is ovate in shape, dull, dirty white in colour, and the shell is smooth but not glossy. It measures 45.5 by 32 millimeters."

It is to be regretted that no publication of details accompanied the discovery of this egg, for several facts suggest that there may have been a mistake in attributing it to Buller's Shearwater. The avifauna of Mokohinau was closely studied for years by F. Sandager, one of the most careful bird observers in the New Zealand lighthouse service, and he was able to record Buller's Shearwater only as a visitor to that group. He does record as breeding there in October two smaller species, the Little or Allied Shearwater (*P. assimilis,* Gould), and the Fluttering or Forster Shearwater (*P. gavia,* Forster). The description and measurement of the egg given above would apply quite well to that of Forster Shearwater; in fact, the average egg of that bird is slightly larger, although they vary considerably in size. This is also the case with the eggs of Buller's Shearwater taken on the Poor Knights (see plate), but a glance at the measurements given later in this paper will show them all to be much larger than the Mokohinau example mentioned by Bent. Lastly, we found on the Poor Knights that Buller's Shearwater does not lay until December, a habit which it shares with only one other Shearwater in this breeding area, the Fleshy-footed (*Puffinus carneipes*). A brief account of our investigations follows.

Under weather conditions which were little short of ideal, we landed on December 23rd, on the smaller and southernmost of the two main islands. This island is somewhat conical in shape, and on all sides except the north, rises in an abrupt slope from the sea. Near our landing place on the northern end, a heavily wooded valley gave easier access to the central peak. Much of this vegetation is second growth and covers the remains of extensive native cultivations and fortifications, although it is considerably more than a century since the last of the inhabitants were massacred by a war party from the mainland. This one island of the group supports a few wild pigs, undoubtedly descendants of the original "Captain Cookers," and these animals take heavy toll of young Petrels, a large indigenous snail (*Placostylus hongii*), and of young plants. Progress through the skirting belt of flax (*Phormium tenax*) was slow, and through the low-growing scrub on the steep slopes still slower, but we had not gone far before we were able to recognise among the remains of birds which the pigs had rooted out of the burrows, several wings and other parts of Buller's Shearwater. Further inland, in the larger bush towards the summit, the victims of the pigs' depredations were Dove Petrels (*Pachyptila turtur*). During several hours' stay on this island no living Petrels of any kind were found, and all the burrows examined were empty.

On the following day, December 24th, a landing was effected on two of the outlying islets, and later, on the largest and northernmost island, which differs from the others in being more precipitous, but flatter on the top. The vegetation here is described by Dr. Cockayne as "meadow." This consists for the most part of large areas of a wiry coast grass (*Poa anceps*) and pig-face (*Mesembryanthemum australe*) interspersed with clumps of stunted pohutukawa (*Metrosideros tomentosa*), flax bushes (*Phormium tenax*) and the waving tufts of toi-toi (*Arundo conspicua*). Several areas of low forest, invisible from the sea, also occur on this northern island. Here, free from all danger of pigs, the birds were nesting undisturbed. The first burrow examined, on an islet on the eastern side of the group, was about twelve feet above high-water mark, in hard soil, underneath a ledge of rock. It was only two feet in length, and the bird could be seen sitting head inwards. Unlike several handled later, she



Eggs of Buller's Shearwater.

Photo. by R. A. Falla, R.A.O.U.

offered very little resistance when removed from the egg. As we spent the remainder of the day examining typical burrows on the main northern island, the results of our observations generally will be best noted under the following heads:—

Situation of Burrows.—Quite a wide range of burrowing sites had been chosen. While a few were found half a mile inland under roots of trees, the majority were in the cliffs and sloping seaward faces. In one place the flat cliff top, two hundred feet above the sea, consisting of sandy soil held together by a matted rush-like growth, was undermined with burrows opening from the top and running underground in all directions. Most of them were separate and averaged 3 feet 6 inches in length, but in some cases one tunnel was found to branch off inside into two nests. Elsewhere there was a number of short "runs" with two entrances, and in one of these a female bird was taken, but no egg found.

The Nest.—This was placed, not at the extreme end of the burrow, but a short distance from it, leaving beyond a chamber large enough to enable the bird to turn round. A larger quantity of nesting material than is usual with most Shearwaters was used. Most of the nests contained two or three handfuls of twigs, broken root fibres, and dead leaves.

Eggs.—Each nest contained a single white egg, more or less stained by contact with the bird's feet. Those examined varied somewhat in shape and size, but the majority were ovoid, tapering rather finely at the narrow end. The surface is smooth, sometimes with a barely perceptible gloss, and is minutely and sparsely pitted. All these characters, however, appear to be variable both in presence and in intensity. Measurements of a series follow, the numbers referring to Plate:

Egg No.	1.	65.0 mm. by 43.5 mm.
	2.	68.0 mm. by 43.6 mm.
	3.	61.5 mm. by 43.6 mm.
	4.	63.1 mm. by 41.5 mm.
	5.	66.0 mm. by 43.5 mm.
	6.	63.0 mm. by 41.5 mm.

Incubation was well advanced, and each of the six eggs, representing several different localities on the island, contained an embryo at practically the same stage of development. In one nest, however, two eggs were found; one of these contained an embryo chick, and the other was quite fresh.

Habits of the Bird.—Prior to this last visit to the Poor Knights the writer has had several opportunities of observing Buller's Shearwater at sea between Auckland and North Cape. They are easily distinguishable both when on the wing and at rest, as their greater size separates them from the other white-breasted species found on this coast. The mode of flight varies with the weather. In a stiff breeze the birds appear to best advantage, sweeping in half-circles, and skimming the wave-tops, resembling

Albatrosses rather than the smaller Petrels. Under such conditions they are usually to be seen singly or in scattered flocks. In calm weather the wing strokes are powerful and measured, and the flight is usually close to the surface, although seldom in a straight line. Occasionally a large flock is met with resting on the water, while Messrs. Myers and Sutherland report that, in company with flocks of the Silver or Mackerel Gull (*Larus novæ-hollandiæ*), they congregate over the broken water caused by the shoaling of the Kahawai (*Arripis trutta*). When the bird is in flight the dark, wedge-shaped tail contrasts conspicuously with the light grey upper coverts, and a similar contrast is noticeable between the dark brown of head and wings and the grey mantle. The grey of the lower neck projects a slight distance down on each side, forming a partial collar when seen from above. The dark brown markings on back and wings form, when the latter are extended, a dark mark like a wide inverted W.

While birds may be seen at sea all day, there is no sign of life at the nesting place until nightfall. At 9 p.m. on the 23rd, the moon being full, the inlet in which our launch lay was filled with the silently gliding forms of the Shearwaters on their way from the sea to their burrows in the hillsides. Only occasionally did one utter a plaintive call, in tone like a kitten's mewing, but more high-pitched and raspy. These were probably the male birds, as all the sitting birds examined on the following day were found to be females. On being taken from the burrows they offered varying degrees of resistance, using their sharp bills with dexterity and precision. Some of them uttered a long series of double calls, consisting of a sound like a young child's cry, with a sobbing intake at the end. They were quite dazed on first coming into the daylight, and would sit on the cliff edge for some seconds before waddling down the slope and finally gliding at a sharp angle down to the sea. One bird whose burrow had been opened blundered into another occupied burrow near by. In two seconds intruder and owner emerged with bills interlocked and wings flapping, the contest lasting until the former took flight.

An account of the habits of the bird would not be complete without some reference to the Tuatara Lizard (*Sphenodon punctatus*). This ancient aristocrat, whose lineal descent can be traced back to the Permian Era, is now confined to a few islands off the New Zealand coast, where it is frequently to be found in or near the burrows of nesting Petrels. On the Poor Knights it favours, or possibly troubles, Buller's Shearwater with its company. Tuataras were found at the entrance to many of the burrows, or just inside, and although no resentment was shown by the Shearwaters at the intrusion of these creatures, the reptile seemed unwilling to approach a sitting bird, even when hard pressed to find a place of refuge. No doubt, while the nestlings are very young, the Tuatara includes a few in his limited menu; in fact, one which we captured on the Poor Knights regurgitated an undigested scrap of bird, the plumage of which looked like that of a fledgling Diving Petrel (*Pelecanoides urinatrix*). Reischek's investigations on Karewa Island in the Bay of Plenty (Trans. N.Z. Inst., Vol. XVIII, p. 109, 1885), indicate that they are there in the habit of chewing off the heads of young Shearwaters, probably *Puffinus carneipes.* However, the mortality among *Puffinus bulleri* due to the Tuatara must be so small as to be negligible. The ravages of wild pigs on the large southern island are a more serious menace, but fortunately the pigs are confined to this one island, and do not exist on several others where the Shearwater is numerous.

Food.—The only evidence obtained under this head was by examination of the stomach contents of the few birds taken as specimens. In each case the stomach, crop and even the gullet were crammed with a viscous olive-green mass, almost entirely composed of minute crustacean remains, but containing also a few beaks of a small cephalopod. Unfortunately the samples taken were lost before they could be examined, so that identification of the species still remains uncertain.

Conclusion.—Much fuller investigation of this breeding ground is necessary in order to obtain anything like adequate information on the life history of *Puffinus bulleri.* In the present state of our knowledge it would be impossible even to estimate the number of birds breeding on the Poor Knights. That it must be very large may be gathered from our last experience of the birds just before leaving. The sky was overcast, and a sharp north-easter was whipping the wave-tops into foam, and raising a nasty sea. We lay on the eastern side of the northern island, with an unbroken view of the seaward horizon extending through 180 deg. At about a mile from the launch, showing just above the horizon line, and extending along the whole visible length of it, was a bank of wheeling Shearwaters. As far as we could see with binoculars they were all Buller's. Beyond them again were still more wheeling birds, and so on until they disappeared as specks in the distance. At a conservative estimate they must have numbered many thousands; while at the same time we had reason to believe that most of the burrows on the island contained sitting birds.

It is a matter for congratulation that the New Zealand Government, mainly owing to representations made by Mr. Fraser, has already declared this group of islands a Scenic Reserve, and it is to be hoped that a sympathetic public opinion will co-operate with Mr. Fraser in his untiring efforts to protect the unique wild life of the sanctuary from interference by unauthorised persons, or imported pests.

A Review of the Genus Calamanthus

By EDWIN ASHBY, M.B.O.U., C.F.A.O.U., etc.,
"Wittunga," Blackwood, South Australia.

By arrangement the skins of members of the above genus, belonging to the collections in the S.A. Museum, and those of Mr. Parsons and the writer, were recently assembled together and a careful examination made in daylight.

Calamanthus fuliginosus Vigors and Hors., was first considered. Skins from both Southern, Central and Northern Tasmania were examined and a very wide divergence was noted. Several northern skins were decidedly more grey than any from further south, but then the two richest coloured, and darkest, skins of all were also from the north of that island. This series was compared with skins from Victoria and from the South-east of this State, with the result that we united in considering them conspecific. We were unable to distinguish even sub-specific differences, for the margin of variance in the skins from Tasmania was considerably greater than was the difference observable between normal Tasmanian skins and the mainland birds.

C. montanellus Milligan.—The only skins available were three specimens in the writer's collection, one from the type locality, one from the Wongan Hills and the other a recent skin from much further north. We were able to substantiate the conclusions that were urged by the writer at the Adelaide Congress, *viz.*, that *montanellus* was certainly deserving of full specific rank. The beak, shape of head and markings, all show characteristic differences. It was agreed that this species is nearer to *fuliginosus* than to *campestris*.

C. campestris Gould.—A long series of skins ranging from south-east of Adelaide, westward to Eyre's Peninsula and northwards to the Gawler Ranges and a locality 50 miles north of Port Augusta was examined. Port Augusta is the type locality.

While there is, as might be expected, some margin of divergence, the general characters are consistent throughout. We concluded that all birds found south of a latitude of not more than 50 miles north of Port Augusta, will be found to be easily referable to this species.

C. isabellinus North.—A fairly long series was examined, ranging from Leigh's Creek northwards and westwards to Point Cloates and Day Dawn, in North-western Australia. We found that the general characters throughout this very extended habitat were constant. Birds in which the striations on the crown were absent (as originally described by North) come from the same localities and were found breeding together with birds which show the striations and are identical with the bird described under the name of *rubiginosus* by Campbell. North informed Dr. Morgan many years ago, that he had found out that *isabel-*

linus did often have striations on the crown, and said he was publishing a note to that effect.

We consider that *C. isabellinus*, North, should be given full specific rank, it being an interior species, only nearing the coast in the far north-west, where the interior conditions extend to the coast. The name *isabellinus* antedates Campbell's name of *rubiginosus*, and so must stand.

LIST.

C. fuliginosus, the Striated Field-Wren, habitat Tasmania, Victoria and S.E. portion of South Australia.

C. montanellus, Rock Field-Wren, habitat southern but not coastal portion of Western Australia.

C. campestris, Rufous Field-Wren, habitat South Australia south of the head of Spencer's Gulf, and, we believe, Eastern Victoria.

C. isabellinus, Rusty Wren, habitat, northern South Australia and Western Australia, extending from Leigh's Creek north and west to Point Cloates, and probably inland N.S.W.

A Trip to Mungeranie, Central Australia

By DR. BROOKE NICHOLLS, R.A.O.U., Melbourne.

On May 24th, 1922, I left Melbourne for Adelaide in company with Dr. George Horne to visit the country of the Wonkonguru, a native tribe inhabiting the eastern shores of Lake Eyre. Cooper's Creek forms the southern boundary, and their territory stretches northwards to the Warburton River (so called by McKinlay, the explorer, in 1861, after the then Commissioner of Police in Adelaide). Later it was found to be the eastern end of the Diamentina River, and re-named after the wife (Diamentina Roma) of the first Governor of Queensland (Sir George Bowen) who married the daughter of a Sicilian nobleman.

Whilst in the district we met an old white-bearded, white-haired native named "Elius," who as a boy of eighteen saw McKinlay (his first white man), and his rescue party searching for Burke and Wills. "Elius" and a companion stalked the party for some days. Stealthily creeping behind the bushes, they came close up and saw the explorers' mob of sheep, from which they eventually cut out and speared a straggler. Hearing a gun fired, they ran away. McKinlay—a red-bearded man—they took to be a black man with his face red-ochred, and the sheep they mistook for a new kind of dog. This chance meeting of ours with "Elius" constituted a remarkable living link between 1861 and 1922, and possibly the last of its kind that will be recorded of the ill-fated expedition.

At Hergott Springs (Hergolt, a German, was a companion of McDougall Stuart in 1859 on his first northern trip), we left the Great Northern Line, and the same day, after a journey across the stony "gibber plains" and salt-bush, crossed the Cooper some 160 miles away. At the time of our visit it was a tree-lined watercourse, three miles in width, its dry, sandy bed covered with a growth of lignum, needle-bush, samphire, salt-bush, buckbush, and Coolibah. There was a thin trickle of water in the centre, the overflow from an artesian bore, which petered out in the sands a few hundred yards from where we crossed. In flood time the river, overflowing its banks, is fifty miles wide in places. Captain Sturt—that wonderful man who ran the Castlereagh, the Darling, the Murray, the Murrumbidgee, the Macquarie, and the Lachlan to their terminations—discovered Cooper's Creek in 1844, naming it after Judge Cooper, of Adelaide. He described it as consisting "of water deep blue indigo in colour, stretching for miles, with Cormorants, Pelicans and Seagulls perched along its banks." We saw no blue water or waterbirds here, but, later in the trip, came across a small colony of Seagulls (twelve in number), dipping into and settling on the surface of the "blue pools" of the Diamentina some 70 miles from the northern end of Lake Eyre. Seagulls in Central Australia—the land of sharp contrasts and never-ceasing wonders!

Once past the Cooper we left the "gibber" stones and ran into sand-dune country. The going was extremely heavy. Up and down over the sandhills 40 to 50 feet high, ran the car, the wheels, rapidly twisting and turning, throwing up sprays of sand resembling the light wind-driven spume from the cut waves of a racing destroyer. At times we all alighted and helped the engine over the heavy sand, and once the mail man (Harry Russell) got out of the car and led it down the hill with the engine running at full speed, walking alongside the while, and giving the wheel an occasional twist. Late that afternoon there was a crack as the back axle snapped in two. The wheels sank up to the hubs, and, after digging the sand from underneath, the car was "jacked up," and the spare axle refitted in two hours. Meantime I went out with a small collecting gun, and secured a few specimens for the Museum.

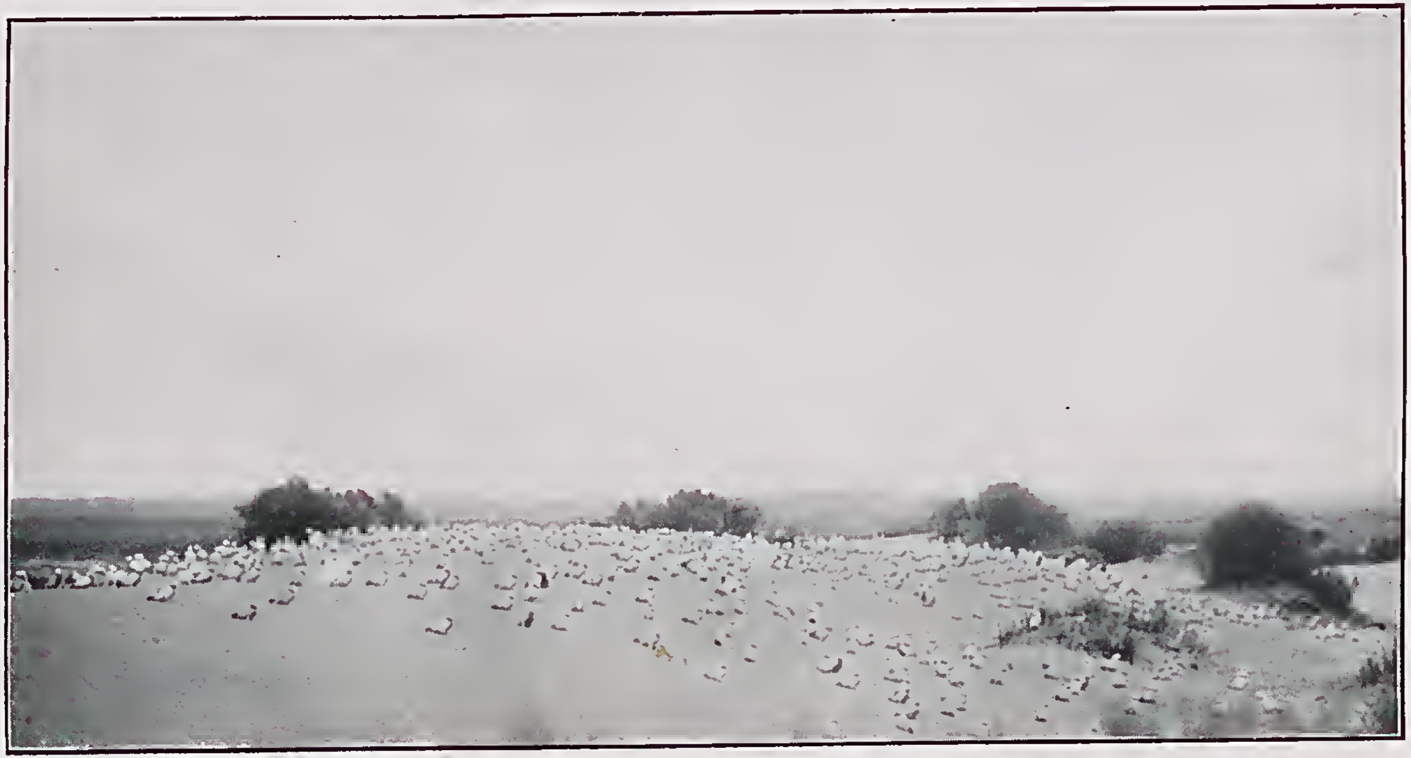
The dunes are covered with cane grass, a kind of Spinifex, a yellow flowering broom, and Stuart's Desert Pea, this last having a bird-shaped flower, green in colour. The sandhills are not as barren and destitute of life as they appeared. Wood-Swallows (*Artamus cinereus*), flying from bush-top to bush-top, with, at times, a peculiar hovering flight, were very numerous, as were also the desert Grass Wrens (*Diaphorillas modesta* and *D. striata*), and Cinnamon Quail-Thrushes (Ground-birds). The ground was riddled with the holes of rabbits and native animals, the marsupials burrowing an almost vertical shaft, whilst the rabbits "dig down" on the diagonal. So numerous were the marsupial rats, mice, rabbits, bandicoots, lizards, and birds that the smooth soft sand was diapered with their tracks in all directions. The natives inhabiting these parts dig 90 per cent. of their food out of the sand.

We ran out of the sandhills of the Cooper, and spent the night at "Two Wells" homestead, and the next morning were away again before daybreak, and once more on the "gibbers," where we disturbed a flock of Galahs feeding, on the ground, before the sun was up. As they rose in the air and wheeled all together, the rose pink of the under surface glinted for a moment as they turned, like the first faint flush of dawn that a few minutes later suffused the sky, heralding the coming day. Every day whilst tramping the countryside we came across the Galahs in flocks of four or five hundred out on the "gibbers" or in the buck-bush country. The quantity of seed scattered among the stones and sand must be enormous, for these birds were all fat. They are never found more than five miles from water, and are a welcome sight to all travellers. All around the bushes, where the birds fed were the patterns of their feet, depicting an oval-shaped heel and two long toes extended in front. In places the tracks were interlaced with those of the dingo and the "pussy cat," as the natives always call the domestic cat run wild, and here very often the bushes were be-spattered with feathers. The sand is a great telltale, and many stories and tragedies can be read in this remarkable land of footprints. One felt grateful that the natives considered the "pussy cat" one of their greatest table delicacies. At the three-mile post (a heap of bleached bones), from Mungeranie we saw a string of hobbled camels silhouetted against the sky-line, as they fed, and soon after, we passed the water barrels and the packs stacked upon the sunlit sands. The Afghan teamsters were still asleep in their blankets. Later in the morning we reached our destination, the home of Mounted-Constable S. Aiston. It was set in a compound of rustling green-leafed bamboos, with date palms, Persian tamarisk, and Coolibahs sheltering the house and the lagoon, a veritable oasis of the waste lands. Given artesian water or a two-inch fall of rain, the desert blossoms like the rose.

Each day towards sundown, when travelling, the pack horses (half a mile ahead) knowingly halted at every bush or tree, and looked back to see if we were going to camp. Presently we stop, and back they come at a rush, glad to be rid of their loads and saddles. After the sun has gone the ground becomes very cold, and more than once the thermometer registered two degrees below zero. Immediately after supper we turn into the sleeping bags, and the great silence is broken only by the sound of the flames blowing in the wind, the "sizzling" of a green piece of burning "dead finish," and the distant tinkling of the hobbled horses feeding out in the darkness. Aiston smokes and yarns of the Overland Track, and the 1,000 miles of unknown country stretching from Fowler's Bay at this end of the Bight to Birdsville and beyond, and tells how, when the country is under water (it is not always a dry, stony, saltbush desert), they float the buggies across the rivers, first removing the wheels, for the current, which turns them backwards, would unscrew the wheelcaps, and they would thus be irretrievably lost. During our meal several small birds (Wrens) visited the "dead finish" bush alongside the fire and only settled to rest after great flutterings and trepidations. We had usurped their roosting-spot—the only tree for miles around.

One morning, whilst motoring over the desert on our way to Mungeranie, South Central Australia, we disturbed two large flocks of Galahs (*Cacatua roseicapilla*), about three hundred in each flock, feeding on the ground before the sun was up. During the day the birds feed out on the desert sand ridges and gibber plains and return every night to the nearest water-hole to drink and to roost. The presence of such birds as Galahs, Pigeons, Honeyeaters and Finches is an indication of water usually within a radius of five miles. So unfailing is this indication that, when these birds are seen, the search is always made for water if one is running short, and desirous of camping for the night. On the other hand the Cinnamon Ground-bird is found as far as fifty miles from water, and Hawks and Kites also range far away over the desert.

The life-history of the Galahs could be told in cinema and camera in this district. The Coolibahs around the water-hole at Mungeranie are the resting-place of thousands of these graceful birds. Each morning they fly away with loud screechings half-an-hour after sunrise out to the gibber plains and sandhills, where they may be seen feeding at all hours of the day. One puts large flocks of them to flight when riding or driving over the country. Every afternoon about 4.30 the first flock returns from the desert, and from that time until after sundown they come in increasing numbers. We estimated that at least ten thousand birds occupied the 150 trees that surrounded this water-hole. Each flock as it returns from the desert makes straight for the water, alighting on all the trees, festooning the branches as with strings of rosebuds. From the trees they drop down to the snags and fallen logs in the lagoon to drink. As the birds are numerous and the drinking places few in number, it is a fine sight to see dozens of these birds packed thickly on the snags and logs along the surface of the water, pushing and struggling for drinking positions. A crack of a whip or loud clapping of the hands sends the birds circling in thousands. After a time they settle again, shrieking and calling as they



Rose-breasted Cockatoos (Galahs) resting on a Sand-dune, Central Australia.

Photo. by Dr. Brooke Nicholls.

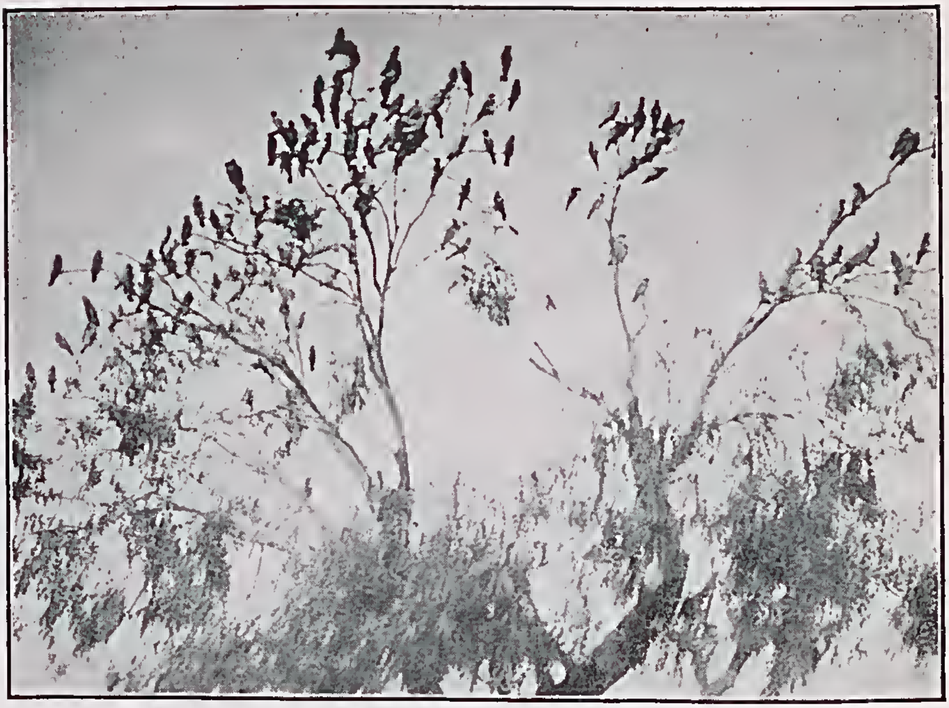
NATIONAL MUSEUM MELBOURNE

flutter from the tree-tops to the stumps in the water, where a constant shuffling and rearrangement takes place as the birds arrive to drink. As the sun sets the clouds reflect some of the colours in the water, so that the surface has a pinkish tinge, and, as the birds flutter and hover over it, and dip their bills to drink, they are reflected as in a mirror of rose pink glass, and their numbers appear double All the while relay after relay comes in, and soon the lagoon is a moving mass of birds. When disturbed they rise in clouds and fly low down in and out among the trees seeking new resting places. If one stands unobserved under a tree the birds fly until they are almost upon one, and then swerve away in a long low curve, and their numbers are so great that the following birds continuing the upward sweep and then a downward one give an undulating wave-like motion to the mass of moving birds. The noise of their many wings is like the roar of the sea, and as they pass across the water their hundreds of reflected forms give the appearance of two great flights of birds, one above and the other beneath the surface. The sudden outward flight of hundreds of these birds from a tree-top is like the bursting of a coloured rocket. No pen may describe the sight of these gaily-coloured birds, rose-pink and French grey, against the purple colours of the late afterglow. Many of them, during August, September and October, nest in the hollows of the trees along the lagoon, but, as there are not sufficient nesting sites for all, the continual fights and squabblings that occur are better imagined than described. Along the Cooper, where the birds nest in thousands, they fight with the possums, and dislodge them from the hollows of the trees, so that the possums are to be found mainly in the rabbit burrows at this time of the year. Many of the large surface waters in Central Australia are saline and both the Galahs and the Topknot Pigeons have discovered the knack of scratching in the sand alongside the salt water for a supply of fresh. The dingo and the brumby have also long since discovered this interesting plan for themselves. When the rains come the Galahs go out to the desert and remain there, finding plenty of water in the creeks and claypans. Coming in from the desert at dusk, they fly low over the gibbers a foot or two above the plain, as the Torres Strait Pigeons do over the coral seas. Along the dry creeks we often found the olive-shaped seed-cases of the Coolibahs scattered about in great numbers at the foot of the trees. Most of them had a ragged hole nibbled at one end, where the seed had been extracted by the Galahs when feeding. One afternoon we witnessed a new phase and secured a new picture in the life history of the Galahs. The birds before settling for the night flew over the lagoon, mounting higher and higher until they appeared the size of Swallows, and then swooping rapidly down they settled in the trees. Some hundreds of them, however, settled upon the sloping sides and summit of an adjoining sandhill, and presented a novel sight. Closely packed together upon the golden sands they looked like battalions of lilliputian soldiers in blue-grey uniform and red forage-caps; they made a wonderful picture.

One night after sundown the sky was singularly beautiful, for this is the land of wonderful sunsets. The horizon was a band of purple for about 10 degrees, and above that was an equal layer of lighter violet, and the vault of the heavens showed a mackerel sky of pink-tinted clouds. Against this background the branches and leaves of the dark green Coolibahs with the tops of the trees a packed mass of birds were sharply silhouetted. For a few moments the waters of the lagoon reflected the colour of the upper strata, turning the surface to a rose pink, a combination of colours that requires to be seen to be appreciated. The darkness comes rapidly in these latitudes. The sun sets at six, and it is dark at half-past. The Galahs have settled to sleep with many wranglings and recriminations, and quietness reigns over the lagoon. Later the moon rises, casting deep shadows, and the stars are reflected in the pool. Some of the wild fowl feed during the night, and Avocets, Stilts, and Grebes call their shrill notes. Towards midnight, falls a deep silence, to be broken presently by the discordant tinkling of many bells as a string of camels tops the sandhill and stretches its long length down the slope to the lagoon, where the desert-dry, thirsty beasts with contented loud-mouthed bellowings and deep sucking noises take in the life-giving water. The Galahs, disturbed from their slumber, greet the newcomers with shrill screeching and expletives. Every cavalcade must halt here for refreshment. It is the port of call for all these desert ships that pass in the night, and oh! the wonder and strangeness of it all!

Some three hundred Grey Teal (*Virago gibberifrons*) frequented the water-hole on the Derwent River, South Central Australia, and we saw several flocks of them upon the Diamentina. The blue in the wing makes a conspicuous band when the birds are at rest. These birds feed during the night and the early morning. Most of the day they frequent the margin of the water, alternately sleeping and preening their feathers. A string of camels coming to water or a herd of overlanding cattle would put them to flight, and at such times, whilst waiting for them at the other end of the water, one was able to get pictures of them in the air. Like most of the water birds in these regions this Duck nests only in flood time. In the river country (the Cooper and Diamentina), Mr. G. Aiston informs us they nest in the "pepper grass," a soft grass nearly half an inch in width and almost stemless, growing to a height of nine or ten feet. In good seasons the Teal nest in thousands in these bushes for many miles along the river banks.

About twenty Red-necked Avocets (*Recurvirostra novæ-hollandiæ*) lived about the lagoon. Part of their food consists of water beetles, which, constantly rising all day long, keep the



Rose-breasted Galahs, taken after sunset, at Mungeranie, Central Australia.

Grey Teal on the Lagoon, Mungeranie, Central Australia.

NATIONAL MUSEUM OF MELBOURNE

surface of the water moving in a series of little ripples. As the birds fly in pairs from one part of the lagoon to another about a foot above the surface, with their long legs and bill outstretched (the dark colour of the head and the black tips of the wings contrasting with the white of the body), they make a pretty picture. When they alight they begin to feed immediately, "up-ending" like ducks if the water is too deep for wading. They will feed in company with Ducks and Grebes, but when sunning themselves on the bank usually gather a little apart from the Teal.

In the warm sunlight of middle afternoon the Teal and Stilts rest along the banks of the water, and so well has Mounted-Constable Aiston looked after them that I was able to approach to within eighty feet of them, and am now sitting "writing them up" at that distance. Backed by the white of the sandhills the dark forms of the Teal show up against the waterline, and the conspicuous black and white plumage of the long-billed, long-legged Avocets make a fine contrast to the dark mass of the other birds. The crooning notes of the contented birds, well fed and sunwarmed, come drifting down the wind to where I sit. All at once there is a rustling and flapping of wings, and the surface of the water is broken by swimming and diving birds as a large Brown Hawk flies over not more than twenty feet above them. Swallows skim lightly over the surface, and a pair of Hoary-headed Grebes bob up and down in front of me. As a result of the Hawk's visit the Avocets (their bright chestnut heads glistening in the sun) have moved to within forty feet, and are now feeding and calling, their single notes sounding like the "reed call" made upon a penny trumpet. And I have not another plate with me! One is continually learning something about nature photography here "out-back." There are at least three hundred Teal in the picture, and twenty Avocets. It is as yet too early for the Galahs. They come in just before sun-down, when the light is almost too bad for good photography. We met a flock of them to-day out upon the sandhills and gibber stones. What they find to feed upon is a mystery!

The first mob of Galahs has come in to the water-hole with their loud shrieking notes. The second mob has followed within the space of time it has taken to write this passage. A few of the green treetops, and more particularly the dry and dead trees, are beginning to be festooned with the living chains of birds, their pink breasts aglow in the sunshine.

The sky behind the mass of coloured birds is a light peacock-blue, with scattered masses of white clouds, and the combination of colour, pink birds, blue sky and white clouds, is one to be remembered. Every now and then a little bit of colour falls from the tree-top like an autumn leaf, as the Galahs drop down to drink. Our boy, "Jack," is waiting patiently at the other end of the water-hole, with the telephoto lens focussed upon a tree, so that I may drive some of the newcomers down for him to secure a picture. Just as I close my note-book, I hear a note not unlike that of the Avocets, and four White-headed Stilts fly over where I am sitting. They wheel and turn, coming up into the wind as they settle thirty feet away, their beautiful black and white plumage flashing in the sunlight. Their red legs are conspicuous as they wade about and commence to feed. Immediately upon their arrival the Avocets fly away down the waterhole. They have just returned, but keep a long way from the Stilts. I then noticed a peculiar feeding habit of one of the Avocets. With great swiftness it flew over the surface of the water, wheeling and turning like a Swallow in chase of an insect of some kind, and during its flight I saw it dip its bill down to the surface of the water and pick up something. At other times whilst feeding they will dive the head under water and feed like a duck or waterhen, with their feet in the air. In shallow water, with legs only submerged, they walk fast, dipping the bill and head completely under water at each step, and then raising the head to swallow quickly, as a Tern does on the wing. These birds are more quarrelsome than the Teal, and are constantly chasing and upbraiding one another with shrill calls.

At Lake Letty I saw one of these birds slashing its long upturned bill from side to side over the surface of the water, in the same way that a man would use a curved sickle. It waded knee-deep along the bank for some distance, using its bill in this manner, and was gathering a meal of the minute midges that floated and danced on the surface of the lake.

On the road to the Diamentina I saw a Black-faced Wood-Swallow (*Artamus cinereus*) on an ant-heap feeding upon the ants. This, one of the smallest Wood-Swallows, is a dainty bird, practically all grey in colour except a small patch of black about the eye. It is to be found throughout South Central Australia from the Cooper to Cowarie on all classes of country—gibber plain, saltbush, sandhill or river-course. A small colony of these birds *clustered* in two or three layers each evening at dusk on the rough bark of a Coolibah on the bank of the Derwent River at Cowarie, each bird closely pressed against the other. When alighting they made use of the tail after the manner of the Spine-tail Swifts to aid them in securing a firm support. On the side of the tree in the dusk they looked like a small knob or excrescence on the bark. Their flight is alternately flying and soaring, and we have seen a bird hovering for minutes at a time, like a Kestrel, eight or nine feet above the ground. They remained so steady in the one position that we thought of the possibility of getting a cinema picture of them. When pursued they became very wild and difficult of approach, but as a general rule they were easy to secure. Their only note was a short chirruping twitter, and their favourite vantage point a dead twig of a cotton or saltbush, a few feet above the ground. I was fortunate enough to secure a picture of the birds clustered together, the first occasion, I believe, upon which this clustering habit of Wood-Swallows has been photographed.

The dainty White-backed Swallow (*Cheramoeca leucosternum*)—birds which looked like large black and white butterflies as they skimmed over the surface of the lagoon at Mungeranie—were to be found wherever there was permanent water. They nested in holes in the sandbanks where the wind had eroded away the face of the dune. One morning, whilst photographing the nesting site, we picked up a dead bird at the foot of the cliff. Many birds must be buried during or after a storm whilst nesting, as the wind undermines the cliff and the sand comes tumbling down. They were fairly common on the Diamentina, where we met them with the Welcome Swallows and Fairy Martins, all hawking in company over a stony ford where the natives had built a fish trap of stakes in the shallows. High up in the river bank we saw about fifty holes of the nesting site of a colony of these birds too high for a successful photograph. Upon another trip we saw a pair of these birds investigating the wall of a "soak" sunk in the bed of a creek by the natives in their search after water. There was plenty of water in an adjoining stream, and the birds were evidently looking out a nesting site.

One morning I chased a male White-winged Wren (*Malurus leuconotus*) for nearly a mile without securing it. This dainty sprite of the desert with the white wings showing during flight was one of the shyest of all birds when alarmed. It was accompanied by two uncoloured birds (females) and kept well ahead, flitting from the top of one bush to another as I raced after it. After following it for nearly a mile another male bird put in an appearance, and the two commenced to chivvy one another round the bushes. Thinking this to be my chance of securing a specimen I stealthily stalked the pair, but one of the female birds giving the alarm, they flew away and outwitted me. These birds were by no means common and were found in the cotton-bush country with its isolated small stunted trees of "dead finish" and needle-bush.

Like the poor, Little Crows, or Bennett's Crows (*Corvus bennetti*) were always with us. At every yard and camel camp they assembled in dozens perching and pecking into the packs and saddles and investigating the remains of the breakfast "table" for any scraps. At Cowarie we placed a bone outside a window, and the Crows came up to within fifteen feet of the cinema. They were, however, very cautious. Throughout this country the Crow was ubiquitous, and was detested by the people, despite its good habit of eating carrion and cleaning up the possible breeding places of the blow-fly. In very hot weather they are the first birds to fall dead out of the trees around the water-hole. Their black covering readily absorbs and retains the devastating heat of the summer. They are very inquisitive, and one of these birds at Cowarie stole the false teeth belonging to Billy, the "horse-boy." He chased it two miles without success. Once, as we left the cinema standing during a lunch halt, waiting for the sun to break through a cloud, another of these birds approached within a few feet, and we nearly lost a spirit level. At the midday camps, when out with the pack horses, a few of these birds always waited around, and within half a minute of our breaking camp were up at the fire foraging for scraps left from the meal.

On the way home from the blacks' camp on the Derwent River at Cowarie (South Central Australia), we saw a small bird, the Thick-billed Grass-Wren (*Diaphorillas modesta*), with tail erect, running from cotton-bush to cotton-bush with incredible swiftness. It was the colour of the sand, and difficult to detect when standing motionless. At times it took cover, and if overtaken simply remained quite still until "kicked out" of the bush. We saw these Grass-Wrens along the sandhills at Cowarie amidst the "cane grass" (Spinifex), together with the White-winged Wren, and we again met with them when driving "home" from Cowarie on the middle of a large "gibber" plain, sheltering from the heat along with several Wrens and a pair of Cinnamon Ground-birds, in a burrow beneath a clump of cotton-bush. All of these birds make use of the burrows during the hot weather, or when closely pressed by Hawks and other natural enemies. This Grass-Wren, like all other forms of desert dwellers (birds and mammals) shows a remarkable turn of speed for a short

Little or Short-billed Crows

distance, *i.e.*, the distance between the isolated clumps of spinifex or cotton-bush which alone afford shelter and protection.

The Pallid Honeyeater (*Meliphaga penicillata leilavelensis*).—This pale-coloured Honeyeater we saw along the dry creeks, amongst the Coolibahs and Acacias, associated with Yellow-throated Miners and "Whistling" Pigeons (*Ocyphaps lophotes*). It had the note and actions of our ordinary Southern "Greenie," and was one of the commonest of birds on the dry creeks where the timber grew. At Mungeranie it frequented the homestead (where there was always a supply of water), building their dainty swinging nests in the long pendulous branches of the Persian tamarisks.

Yellow-throated Miners (*Myzantha flavigula*) were to be met with in pairs or small flocks along the boxtree-lined dry creeks of the interior. When flushed they uttered the squeaky alarm note of the southern bird (Noisy Miner), but they also had a delightful little song, especially in the nesting season. In the early morning their song was the most tuneful of all the birds about Mungeranie.

At the station they came to be fed three or four times a day, and one could stand within three feet of the feeding birds, and watch the rapid action of their brush tongues as they licked the plum jam from the sawn-off end of the branch of a tamarisk. This particular pair started to collect nesting material before we left, and probably built in the adjacent bamboos of the compound. The larger of the two birds, the male, was wilder, and picked at the smaller of the birds (the female) whilst both were feeding together; the male was also a little darker. To watch these birds feeding from a distance of three feet was a revelation of the degree of trustfulness that wild birds of the bush show when properly protected. Their note was full of melody, and as round as a bell—in striking contrast to the garrulous noisy call of the southern form. The yellow patch over the eye and the lighter lemon yellow in the sides of the neck were visible to the naked eye only at a distance of four or five feet. The yellowish markings on the wings shone in the sun, in striking contrast to the light grey colouring of the rest of the body.

The water-hole on the Derwent River at Mungeranie supported a small flock of ten Black-tailed Native Hens (*Tribonyx ventralis*). In the early morning they came to the water-hole, paddled about along the edge, and when one approached too closely ran back to the shelter of the "cane grass" (Spinifex) of the sandhills, where they passed the night. One wondered how they managed to live in such dry country. They were curious looking birds, sometimes feeding along the water's edge, but for the most of the day spending their time grouped around the roots of a particular Coolibah close to the water, apparently asleep or resting. Their short jerky walk and bantam-like appearance made them look almost domesticated. Like all the other desert dwellers they ran with an amazing swiftness. At times they visited the garden at the station and cleaned it up entirely of young lettuce and cabbage, in fact, of anything green. In consequence the settlers find it difficult to grow any kind of flowers or vegetables on account of their depredations.

Seated on the banks of the water-hole one sunny afternoon, waiting for the Galahs to come in, I saw a Whistling Eagle (*Haliastur sphenurus*) take up a position on a horizontal bough over the water, and with telephoto lens secured a distant snapshot. The bird almost immediately flew away and gave chase to a Crow that had picked up a large bone left by the natives when watering their horses. The Crow dropped the bone into the water, and the eagle flew to an adjacent stump in the lagoon, where I again snapped it with the camera. I photographed the bird a third time as it flew away. At all times of the day the high-pitched whistle of this handsome bird could be heard along the water front, but at no time did I see it attacking any of the other birds frequenting the lagoon. However, late one Sunday afternoon we heard the shrill whistling of this Eagle often repeated and saw two of these birds in the air, one chasing the other. A third then appeared. The pursuing bird of the first pair darted at its mate (?), which dropped something that the third bird caught in its claws before it had fallen six feet. It then flew away and perched in a Coolibah alongside the creek, followed by three Crows. "Jack," our boy, ran into the house for the binoculars, and we watched the Eagle plucking the feathers out of a black and white bird, the Crows all the while keeping up a supplicant "caw caw" and waiting for any tit-bits to drop. Upon walking round to the end of the lagoon we picked up some of the feathers of a Mudlark from under the tree, in which the Eagle was still feeding. In the branches above three Galahs perched serenely unconscious of the other bird's fate.

We came across the first Crested "Whistling" Pigeons (*Ocyphaps lophotes*) at Four Mile Creek, just outside Mungeranie. They frequented the dry water-courses and sand-hills of the interior, but were never found more than five miles from water. All the apparently sterile hill-sides and plains of this part of South Central Australia hold much seed upon which Galahs and Pigeons and other seed-eating forms fed. The seed was so thickly scattered that when the rains came the desert blossomed like the rose, and we found all our specimens fat and in good condition. When flying the wings of this Pigeon made a peculiar noise similar to the metallic sound produced by the rusty hinges of a gate. They were locally called "whistling" Pigeons. Their tracks and those of other birds as well as those of marsupials and lizards were to be seen all over the sandhills and in the sandy beds of the creeks, making the countryside a veritable land of footprints. Along the Diamentina we saw fifty of these birds in a Coolibah tree, from whence they flew singly or in pairs to the river bank and walked with stately tread to the water's edge to drink and fly away with curious rustling of wings when disturbed.

One hour before sunset, when the late afternoon glow turns the pale sage-blue of the saltbush to the peculiar silvery sheen of the African silver leaf, the Cinnamon Ground-bird—a study in russet and fawn (the exact colour of the gibber stones and the desert sand)—comes out to feed in the failing light. At this period of the day these Ground-birds (*Cinclosoma cinnamomeum*) appear almost twice their actual size. A remarkable feature of the action of the light is seen in its apparent magnifying effects upon the birds and animals. On a sandy hillside the common wagtail looks as large as a Mudlark. The Ground-bird and the Desert Wren are also enlarged: this quite apart from any mirage effect. On the long endless plains of Central Australia the absence of any comparative features makes it difficult to judge the height of a sandhill rising abruptly from the level and this absence of "standards of contrast," such as one is used to down south, had something to do with the apparent increase in size of the desert forms of bird life. The Cinnamon Ground-bird has not the speed of the several forms of Desert Wrens, but this is compensated for by its sympathetic colouring, which harmonizes so well with its surroundings that if the eye were taken from it for a fraction of a second it disappeared from view, being absorbed into the landscape. It could be detected again only when it commenced to run about and feed.

One afternoon we watched a Wedge-tail Eagle (a magnificent specimen almost black in colour) plucking the feathers from a Crow it had just caught. Like the Whistling Eagle and other birds of prey, it first plucked off most of the feathers with its bill, and then started to eat the flesh. The Eagle (*Uroaetus audax*) finished plucking the Crow in about ten minutes, and all that was left of it when we reached the tree was the beak attached to the long red-raw back-bone, and one of the feet. A sick Crow and an ailing Magpie-Lark had been seen about the homestead, and both of these birds fell a prey, one to the Wedge-tail Eagle, the other to a Whistling Eagle. Nature is red in tooth and claw, and any birds around the lagoon showing signs of senility or weakness were at once singled out and captured. A Central Australian water-hole presents daily the ruthlessness and havoc of Nature as well as its splendour, and in no other locality can the relentless law of the survival of the fittest be seen to such advantage. After the Eagle had finished its meal it flew away to the top of a dead tree, followed by an avenging Crow, "cawing" loud protests, and I secured a snapshot of the two birds in the tree-top.

A pair of Hoary-headed Grebes (*Podiceps poliocephalus*) were to be seen upon most of the water-holes throughout the desert country. There were half a dozen pairs at Mungeranie, and they were very shy, extremely wary, and difficult to photograph. When these birds came out to the bank (as they rarely did) to dress their feathers and dry their wings, their external resemblance to Penguins, as they stretched their necks upwards and flapped their small wings, was most striking. When the water of the lagoon was lapped into little waves by the wind, these birds were set bobbing about like corks upon the ruffled surface.

We encountered a few Gibber-birds (*Ashbyia lovensis*), most of them upon the river plains. Their resemblance to Ground-Larks as they ran over the surface was most marked. They were to be sometimes met with along the dry sandy beds of the creeks.

The following list of the aboriginal names of the birds were collected by Dr. George Horne, from the Wonkenguru natives:—Emu (Werragetti); Stubble Quail (Murroonga); Crested Pigeon (Bullavera); Black-tailed Native-hen (Kudna-chiltie); Southern Stone Curlew (Willoo); Red-cap Dotterel (Digi Digellera); Banded Stilt (Muti Muti); Australian Bustard (Caladara); Glossy Ibis (Mutum-gulla); Australian Crane (Barolgoo); Maned Goose (Gowa); Plumed Whistling Duck (Chippelie); Grey Teal (Taralgoo); Pink-eared Duck (Towaloo); Black Duck (Kootangaloo); Wedge-tail Eagle (Korrawwrra); Nankeen Kestrel (Kirrikie); Black Swan (Kooti); Little Black Cormorant (Waratelli); Australian Pelican (Tompungara); Many-coloured Parrot (Poolan-ko); Warbling Grass Parrot (Kutadura); Sacred Kingfisher (Parra-adee turra cullie); Red-cap Robin (Gimbanibobo); and Magpie-Lark (Collo-ballaro).

BIRDS AT MUNGERANIE AND SURROUNDING DISTRICTS, CENTRAL AUSTRALIA, MAY AND JUNE, 1922.

Emu (*Dromaius novae-hollandiae*); Peaceful Dove (*Geopelia placida*); Bronzewing (*Phaps chalcoptera*); *Crested Pigeon (*Ocyphaps lophotes*); Black-tailed Nativehen (*Tribonyx ventralis*); Hoary-headed Grebe (*Podiceps poliocephalus*); Silver Gull (*Larus novae-hollandiae*); Spurwing Plover (*Lobibyx novae-hollandiae*); Banded Plover (*Zonifer tricolor*); Red-cap Dotterel (*Charadrius ruficapillus*); Black-fronted Dotterel (*C. melanops*); White-headed Stilt (*Himantopus leucocephalus*); Red-necked Avocet (*Recurvirostra novae-hollandiae*); Australian Bustard or Plain Turkey (*Eupodotis australis*); Brolga or Native Companion (*Megalornis rubicunda*); White-faced Heron (*Notophoyx novae-hollandiae*); White-necked Heron (*Notophoyx pacifica*); Black Swan (*Chenopis atrata*); Mountain Duck (*Tadorna tadornoides*); Grey Teal (*Virago gibberifrons*); Pink-eared Duck (*Malacorhynchus membranaceus*); Black Cormorant (*Phalacrocorax carbo*); Wedge-tail Eagle (*Uroaetus audax*); Whistling Eagle (*Haliastur sphenurus*); Black (Fork-tail) Kite (*Milvus migrans*); Square-tail Kite (*Lophoictinia isura*); Grey Falcon (*Falco hypoleucus*); Brown Hawk (*Ieracidea berigora*); Nankeen Kestrel (*Cerchneis cenchroides*); Little Corella or Bare-eyed Cockatoo (*Cacatua sanguinea*); Galah (*Cacatua roseicapilla*); Blue-Bonnet (*Psephotus haematogaster*); Mulga Parrot (*Psephotus varius*); Budgerygah (Shell Parrot) (*Melopsittacus undulatus*); Pallid Cuckoo (*Cuculus*

---

* Skins secured and identified.

pallidus); Bronze Cuckoo (*Lamprococcyx plagosus*); Welcome Swallow (*Hirundo neoxena*); White-backed Swallow (*Cheramœca leucosternum*); Tree Martin (*Hylochelidon nigricans*); Fairy Martin (*H. ariel*); Red-cap Robin (*Petroica goodenovii*); Willie Wagtail (*Rhipidura leucophrys*); Restless Flycatcher (*Seisura inquieta*); Golden Whistler (*Pachycephala pectoralis*); Rufous Whistler (*P. rufiventris*); Black-faced Cuckoo-Shrike (*Graucalus novae-hollandiae*); *Cinnamon Ground-Bird (*Cinclosoma cinnamomeum*); *Thick-billed Grass-Wren (*Diaphorillas modesta*); *Striated Grass-Wren (*D. striata*); *Black-faced Wood Swallow (*Artamus cinereus*); Magpie-Lark (*Grallina cyanoleuca*); Grey-backed Silvereye (*Zosterops lateralis*); *Crimson Chat (*Epthianura tricolor*); Orange Chat (*E. aurifrons*); Gibber-bird (*Ashbyia lovensis*); Chestnut-crowned Babbler (*Pomatostomus ruficeps*); White-winged Blue Wren (*Malurus cyanotis*); Striated Diamond-bird (*Pardalotus striatus*); *Cloncurry Honeyeater (*Meliphaga penicillata*); Yellow-throated Miner (*Myzantha flavigula*); Ground-Lark (*Anthus australis*); Fire-tailed Finch (*Zonaeginthus bellus*); Chestnut-eared (Zebra) Finch (*Taeniopygia castanotis*); Little Crow (*Corvus bennetti*); Black-backed Magpie (*Gymnorhina tibicen*); and White-backed Magpie (*G. hypoleuca*).

Mr. Aiston has, since our visit, resigned form the South Australian Police Force. It is reported that shooting of the birds on the lagoon is not now prevented and this splendid sanctuary is in danger.

Re-Discovery of the White-backed Wren, *Malurus leuconotus*, Gould.

By J. R. KINGHORN and TOM IREDALE, Australian Museum, Sydney.

A little over five years ago, Mr. E. L. Troughton, a zoologist on the staff of the Australian Museum, made a collecting trip to South Australia, where many valuable specimens were acquired; among them being a number of birds, one of which was identified as *Malurus leuconotus* and placed in the reference collection without further notice being taken of it.

A few days ago one of us (Iredale) was sorting out some Wrens to illustrate a lecturette to the N.S.W. Branch of the Ornithologist's Union, when he immediately acclaimed one of them as the long-lost White-backed Wren. After a brief consultation we decided to draw up this account relative to its history.

In the Proceedings, Z.S., 1865, p. 198, Gould described *Malurus leuconotus* from the "Interior of Australia," "precise locality unknown," though he at the same time added *Artamus melanops* from Central Australia, collected by Mr. S. White at St. a'Becket's Pond, in lat. 28 deg. 30 min. (10 miles south-east of Farina); later, in his Supplement to the Birds of Australia, he figured this species, pl. 24, and stated that it was forwarded to him by Mr. Galbraith, of Machrihanish Station, South Australia. The White-backed Wren was eventually included in all Australian lists, but Ogilvie Grant (*Ibis*, 1909, p. 675), and North (in "Nests and Eggs," ii., p. 217), both of whom examinned many named examples, decided that none of them exactly agreed with Gould's description, and that *M. leuconotus* was not distinct from *M. leucopterus*, = *M. cyanotis*. Carter (*Ibis*, 1910, p 653), agreed with North and Ogilvie Grant, and added that "the appearance of more or less white depends a good deal upon the making of the skin." Recently in the *Ibis*, 1917, p. 589, pl. 10, Mr. Tom Carter, in collaboration with Mr. G. M. Mathews, determined that the White-backed Wren had been based on a freak skin of the common and well-known Blue Wren, then called *M. cyanotis*, and this decision has been accepted by most if not all Australian ornithologists.

The specimen collected by Mr. Troughton came from the banks of a dry creek, in the vicinity of Mt. Lyndhurst, 30 miles east of Farina, S.A., as the following note from his field diary will show: "White-backed Wren—the white back of the small bird showed up clearly against the dark colouring of the other parts, while I followed it amongst some low bushes on the flats and along the side of a dry creek." It is quite possible that Gould's bird came from this or a near-by district, in view of the vicinity of St. a'Becket's Pond, and possibly Machrihanish Station to Farina and Mt. Lyndhurst. We have examined many specimens in the Australian Museum on which Mr. North wrote under both names, but as the blue feathers extend down from head to tail the scapulars alone being white, they are undoubtedly *M. cyanotis*. Contrary to this, the specimen collected by Mr. Troughton has the blue of the head ending abruptly half-way down the neck, while the whole of the back as well as the scapulars are white, no blue being present at all, and there is no suggestion that the neck ever bore long blue feathers, as shown in Mathews and Carter's figure (quoted above). Our specimen is a good one, and agrees perfectly with Gould's description.

We have much pleasure in acclaiming Mr. Troughton's specimen as a representative of the long-lost, probably very local, but quite distinct bird, *Malurus leuconotus*, and we consider that this species should be at once re-instated in Australian lists. As Gould's type is apparently lost, the specimen in the Australian Museum will become the neotype.

Wanted to Buy.

The Emu, part 4, Vol. III. Price to C. E. Simson, R.A.O.U., "Roseneath," Casterton, Vic.

The Emu, Part 3, Vol. I.; Horn Expedition to the Centre of Australia; Sturt's Expedition; Eyre's Expedition; Gould's Synopsis; Gould's Birds (Heads). Price to F. E. Howe, "Athenæ," Bryson St., Canterbury, Vic.

MUSEUM MELBOURNE

Birds Seen Along the West Coast to the Franz Josef Glacier, New Zealand

By PERRINE MONCRIEFF, "The Cliffs," Nelson, N.Z.

From Nelson, driving through the Waimea Plains, nothing of interest was seen, the road lying amidst cultivated land. Here, the imported birds were predominant, flocks of Goldfinches (*Carduelis carduelis*) passed twittering by, their conspicuous gold and red plumage showing up brightly.

Chaffinches, Thrushes and Blackbirds galore, and the contented Skylark (*Alauda arvensis*) all in their turn were passed. At one spot we listened intently, rumour having it that Kakas (*Nestor meridionalis*) had chosen this neighbourhood for their nesting place. It being the middle of the day, all was quiet; like most other birds, they reserve their energies for early morning and sundown. Past Belgrove, we began to climb, and birds became scarce, although we still heard the Skylark, and it was not until we reached Glenhope that the birds reappeared in any number. At this terminus we were inspected and thoroughly discussed by two Fantails. Another mile into the beginning of the Buller Gorge and we were surrounded by Tuis (*Prosthemadera novæ-seelandiæ*), whilst occasionally Quail would run hurriedly ahead of us ever loath to take flight. Eventually the proximity of the car proved too much for their nerves, and they rose in a whirring mass. Californian Quail (*Callipepla californica*) find conditions very congenial in Nelson province. Even at home, a mile out of the town itself, I often see as many as thirty birds in our cherry cage.

Before reaching Murchison, when passing a clearing, two Parakeets flew high over our heads. So brightly coloured when seen on a tree, in flight they were merely two black birds with long tails, so it was impossible to tell whether they were the Red-breasted (*Cyanoramphus novæ-zealandiæ*) or the Yellow-breasted Parakeet (*C. auriceps*); more probably the former, which appears to be the more common. It was a pleasant surprise to see them so near habitation.

Rain descending, it was not until after passing Murchison that we stopped the car and walked three miles along the famous Buller Gorge. The roaring river to our left, with thickly-clad hills all around and wonderful growth wherever we look, would have been marvellous at any time, but, in addition, Bell-birds (*Anthornis melanura*), Tuis, and the Shining Cuckoo (*Lamprococcyx lucidus*) were raising their voices rejoicing at the cessation of the rain. One Shining Cuckoo sat on a branch overhanging the road, and puzzled us with its sweet persistent ventriloquistic notes. At times we gazed to the right; then being sure it was to the left, we peered into the undergrowth seeking the mysterious singer. Finally, the car caught us up and the Cuckoo, alarmed at the noise of the jarring of the brakes, flew out from just above us. Along the road it skimmed, showing its iridescent back, and alighting on a tree-top close by gazed down on us. Its black and white breast was revealed to the best advantage.

The Bellbirds or Makos-makos, as the Maoris call them, all uttered the same tune either higher or lower. It consisted of three notes preceded by a staccato note, *i.e.*, D.C.B.C. (this is as nearly as I can reproduce it on the piano). Some of the songsters were a little shrill, possibly this is their wet-weather song. We noticed on the return journey that, being a fine day, all the Bellbirds were singing the same melody as those we heard at the Franz Josef Glacier in the fine weather.

Up to this time we had seen no Pigeons, but we saw one (*Hemiphaga novæ-seelandiæ*) before arriving at Westport. Goldfinches were extremely numerous, as usual, but we passed few small birds. We were surprised to hear so many Shining Cuckoos as we went along. The Grey Warbler (*Maorigerygone igata*) was occasionally heard, and a few Fantails; only one Black Fantail (*Rhipidura fuliginosa*), however, the rest being the Pied or Grey Fantail (*R. flabellifera*).

Two Pigeons were all of interest sighted between Westport and Greymouth. Leaving the latter town for Punakaikai, a day's run hugging the coast, we sighted two White-throated Shags (*Microcarbo brevirostris*) on a rock before coming to a Pukeko or Swamphen (*Porphyrio melanotus*) strolling thoughtfully along the road. On our approach it merely stepped to one side, flicking its tail up and down after the characteristic manner of the rail family. Very shortly afterwards a Brown Bittern (*Botaurus poiciloptilus*) emerged from a bed of rushes and flew back along the road. We were able to see its longitudinally striped breast, and remarked upon the legs hanging clumsily down as it flew. On our way we passed a Starling (*Sturnus vulgaris*) with a white feather in its tail. The less said about these birds the better—they have penetrated to the remotest places except where the bush is too thick for them.

Two native Pigeons crossed the river within gunshot. Later, as we got further south, the Pigeons became increasingly tame, until eventually they would remain on a tree whilst we pulled up to admire them. The iridescent head and upper parts presented a delightful contrast to the white breast.

From Greymouth to Hokitika we saw nothing to raise our enthusiasm except another extremely nonchalant Pukeko. The sun shining on it inclined one to believe it had stolen a peacock's feathers for its breast and a whole stick of sealing-wax for its beak.

Here may be the place to state that one never went far without seeing a Swamp-Harrier (*Circus approximans*) encircling warily. In spite of persecution, they appear to be very numerous.

From Hokitika onwards bird life became increasingly plentiful. To our delight, after passing a mining settlement, a pair of Parakeets flew right low over the car as we turned a corner. Again, owing to the sudden encounter and the bright light, we were unable to distinguish their plumage. It would appear that at this time of the year they frequent the open country, as each time we noticed them in places where the bush had been cleared.

On Lake Ianthe we saw Black Teal (*Fuligula novæ-seelandiæ*), Grey Duck (*Anas superciliosa*), and more especially a pair of Great Crested Grebe (*Podiceps cristatus*). These birds are said to be becoming rare, but we usually saw a couple or more on each big lake. It would appear in this case that the male is more curious than the female, as, after inspecting us closely, the Grebe went off to fetch his mate, and we thus were able to compare the two. To a person who has never seen them before their crests and marvellous diving powers are unfailing sources of interest. We did not see them with young on their backs.

For the first time we sighted a pair of Yellow-breasted Tits (*Myiomoira macrocephala*).

The country round the Glacier must have in the early days been a wonderful neighbourhood for birds. The days when one saw Kiwis and Woodhens is past, but one can still see Kea (*Nestor notabilis*) about the Glacier, and Kakas occasionally. In Summer one can usually hear the latter whistling and screeching in the bush at sunset. It is interesting that wherever we went we were greeted with the same answer, "The Woodhens used to be here, but they have not been seen for ages"; and yet the Woodhens (*Gallirallus hectori*) are on the Dun Mountain above Nelson, and even occasionally come into the town. This should be a good advertisement for bird sanctuaries, as the bush behind the town is strictly preserved. It is only recently since the birds have been protected that the Woodhens have reappeared.

The too-confiding Kea will enter the hut where the tourists spend the night 4000ft. above sea level. He will examine their belongings, and is not averse to removing their shoes if they have the temerity to leave them on the floor on retiring to rest. Another playful trick is to push over the shoes and stockings placed on the wall to dry. To see them disappear into space appeals to the Kea's sense of humour. With confidence in the kindness of man they ingratiate themselves in the hearts of those who see them, and it is with horror that one learns that six shillings is the price paid for their beaks. At the foot of the Glacier we found three dead birds lying where they had been flung, their lovely feathers raised as if in protest at the barbarism of man. Those quaint birds, beloved of the guides, are slaughtered whenever possible, because of the statement that they kill the sheep. One gentleman, speaking against them, described in moving terms the slopes running with blood of the Kea's victims. The strange part about it all is that no proof has ever been brought forward to conclusively show that the Kea does all these heinous things. One hears of many lurid murders, but up to date I have not met an eye-witness. Like the tellers of ghost stories, the narrator is never the person who saw the Keas doing the killing, it is usually a neighbour. Mr. E. Stead affirms that the marking of a ewe with red raddle as a branding mark is sufficient in some parts to spell its death, as the Keas are immediately attracted to what they mistake for blood. I have seen the sheep bleeding from cuts done in shearing which surely would be even worse than raddle if this is the case.

Mr. Peter Graham, the famous guide, maintains that for years he kept thirty ewes at a time in the neighbourhood of Keas at the Hermitage, and never had them touched. To an outsider like myself, six shillings appears a monstrous sum to expend on the destruction of a few birds, whilst the Government compels owners to destroy rabbits for nothing, which last are an infinitely worse pest.

Do Keas kill sheep or not? Surely in these enlightened days one could photograph them in the act. The mere fact of their being seen sitting on a sheep's back is not sufficient proof, as the Starling does the same. If the Keas are proved guilty, are they murderers by choice, or are they driven to it by starvation in hard winters?

Again, do all Keas kill sheep or are there sheep-killing Keas, as in India there are man-eating tigers? If the latter is the case, why let such an interesting bird be exterminated for the sake of a few depraved ones? Six shillings per beak appears to be an excellent source of pocket-money for musterers and others, who naturally wish to paint the bird as black as they can. It is nevertheless a somewhat expensive amusement for the taxpayers, and, being one myself, I should like to see the point cleared up—and before the Kea joins the band of extinct birds. It would be a pity to exterminate them and then find it was not really necessary. "Give a dog a bad name and hang him," is an old saying, and I suspect many people of making use of it to augment their purses.

A visit to a bird sanctuary (the haunt of the now rare White Heron) in the neighbourhood of the Glacier more than repaid us. We were unfortunate enough to miss them, they being on their nests up a creek, but we found ourselves surrounded by Black Swans and other wild fowls. The Swans were proceeding like a fleet in battle formation, the cygnets well protected by a parent on either side. Those birds without young rose on our approach, and flapped out of danger, the white on the under wing showing at each stroke, an excellent advertisement for "Black and White." Finding a late nest containing five eggs, we photographed it. The eggs were laid on a nest well lined with down and raised on a heap of rushes between flax plants a few feet from the water's edge.

Black Teal and Grey Duck flew overhead as we wended our way round unexpected corners up narrow waterways.. A Brown

Bittern, disturbed at his fishing, stalked indignantly away, and a young Fernbird (*Bowdleria punctata*) flew out of a reed bed fluttering its wings and uttering "utick u-tick" as it watched us endeavouring to find the recently occupied nest. The nest is usually placed just beneath the rushes, where these have been blown over by the wind, thus forming an arch to protect it.

As we returned homeward on the tidal waters, the mud was becoming uncovered, and the sea birds returned for their evening meal. Godwits (*Limosa lapponica*) stood in close formation on one leg until we approached too close, when they rose, wheeled, and settled a short distance off. One bird had only one leg, and could be easily distinguished from the others by its ungainly hops. Further on we met a couple of Redbills or Sooty Oystercatchers (*Hæmatopus unicolor*). Their efforts to put some distance between themselves and us were comical to a degree. Being knee-deep in the water, the birds, especially the male, had to lift their legs to get along, and reminded one of the gambols of a young elephant. We had to stop rowing and laugh. This pair were a long way away from their companions, thus one would suppose they were paired for the season. The female, however, was not a Redbill, but a Pied Oystercatcher (*Hæmatopus ostralegus*), thus it would appear that they frequently interbreed. Later on we saw many more on the mud flats, and noticed that there were other couples fishing together, though the Pied Oystercatchers were more numerous. Terns seem to like this neighbourhood, as we sighted a pair of Caspian Terns (*Hydroprogne caspia*), also the common White-fronted Tern (*Sterna striata*) plunging after their prey, whilst everywhere we looked we saw the Mackerel or Silver Gull (*Larus novæ-hollandiæ*) and the Black-backed Gull (*Larus dominicanus*). The White Herons or Egrets (*Egretta alba*), when visible, are usually to be seen near the township, fishing under the bridge or standing like sentries on the mudflats. Rumour has it that before the place was protected their young were collected and given as food to the pigs. Now they are slowly increasing in numbers.

In the evening as we wended our way home through exquisite bush, we heard Kakas calling to each other, and stopped the car to obtain a glimpse of them. They were very difficult to locate, as they were hidden among the branches of a rata tree. Their harsh notes were intermingled with a weird gurgling sound. Later on we sighted one flying to rejoin his mates.

The inhabitants of the Glacier neighbourhood all told me that Parakeets were once very common there. One year, however, these birds were picked up dead in great numbers, after which they disappeared until just recently, when they are re-appearing in small numbers, and it is to be hoped that they will continue to increase. Finding them dead, points very much to the fact that they were attacked by some disease (malaria—?), introduced by imported birds, and are at last becoming immune to it.

One day we made a special trip to visit the nest of a Harrier. It was situated on a tussock of grass about 4ft. from the ground amongst low scrub, the surroundings being swampy. When disturbed, the hen, loath to leave her nest, gazed angrily at us and then rose slowly, revealing her gorgeous chestnut thighs. Flying upwards, she rejoined her mate, and circled above the bush-clad hills whilst we examined her nest. Five dirty-white eggs with their points turned inwards (thus denoting that incubation had commenced) lay on the tussock of grass, with a couple of feathers lying beside them. No attempt had been made to line the nest, and it struck us that when the nestlings were hatched they would have to remain fairly quiet or they would tumble over the edge of the tussock. Withdrawing to a distance, we kept the nest under observation. In a few minutes the parent birds hove in sight, the hen immediately dropping low enough to peer down at her eggs. She, however, did not alight by them, but retired to an adjacent tree, her faithful spouse doing likewise. After flying backwards and forwards several times, she eventually took up her post of observation on a tall tree, where she remained watching us closely. Making up her mind suddenly, she swooped downward to a position quite close to her nest, finally returning to her treasures exactly half an hour after we first disturbed her. The cock bird meanwhile remained on sentry duty for some time, until, assuming all things were normal, he glided off quietly just above the ground, evidently intent on obtaining a meal.

Sparrowhawks apparently are to be seen in the neighbourhood. Not far from Nelson I actually saw this little bird (*Nesierax pottsi*) attack a native Pigeon and bring it to the ground. Mr. P. Graham told us he had not seen the larger Quail Hawk (*N. novæ-hollandiæ*) on the West Coast, though they were to be seen at Mount Cook. The size of these two Hawks is different, the Quail Hawk being the larger, and also the feathers on the thighs coming very much further down the leg, much like the difference between the Golden and White-tailed Eagles of Great Britain.

The Bellbirds at the Franz Josef Glacier emitted their famous bell note, which we had not heard before, also a very little roundelay much like a Scotch reel, which they repeated frequently. We only once heard the notes we had noticed at the Buller Gorge, and then they were only three notes, all equal, going C.B.C. Also they were uttered rather vaguely instead of the emphatic way we had heard before.

Tuis were extremely numerous, one heard the swish of their wings everywhere, and saw them gaily hawking after flies or singing in the intervals between inspection of the rata blossom.

At night, when going out to see the glow-worms on the roadside, we heard the Moreporks (*Ninox novæ-zealandiæ*) calling to each other. Just before dawn, in addition to their mournful note, the Longtailed Cuckoo (*Urodynamis taitensis*) whistled, and solitary Bellbirds joined in. Occasionally when traversing the bush in the daytime we heard the angry chirr or alarm note of the Long-tailed Cuckoo or recognised its indrawn hiss across the swirling ice river. The little Shining Cuckoo would appear less common here than at Hokitika, although we heard it occasionally. The Orange-wattled Crow (*Callæas wilsoni*) seems to have once made its home in this district, and it is still to be rarely seen south of the Glacier. Altogether, during the ten days down the West Coast, we saw a large number of birds of all kinds.

Nest and Egg of the Gang-gang Cockatoo

By FRANK HOWE, C.M.Z.S., Bryson Street,
Canterbury, Vic.

NATIONAL MUSEUM MELBOURNE

In a gully near Tremont in the Dandenong Ranges, on November 11th, 1923, we were watching a pair of Red-browed Treecreepers (*Climacteris erythrops*). Suddenly my ear caught the well-known harsh, grating notes of the Gang-gang Cockatoo (*Callocephalon fimbriatum*). I went uphill as fast as the dense scrub would allow, and finally located the birds in a tall gum tree. The female was clinging to a dead and hollow spout some seventy feet up, and was apparently biting round the hole. The male, a glorious red-crested specimen, was perched quite close to the female on the spout itself. I watched them for some time, but was disturbed to see three other Gang-gangs feeding on the outer branches in the same tree. These latter were grey-crested birds, and probably were the immature young of the adult birds that were on the spout. I called my companions (Messrs. E. W. and H. W. Bunn) to the spot, and we watched the birds for some time. This spot was carefully avoided for a few weeks so that the birds would not be disturbed.

After the R.A.O.U. members had returned from Tasmania, I had the pleasure of meeting Messrs. J. Neil McGilp, of South Australia, and C. E. Simson, of Casterton, Victoria — both earnest workers and keen oologists. I prevailed on them to accompany us on an excursion to see some of our rare birds, and possibly enjoy being present on a historical occasion—that of the taking of the eggs of the strange, though not uncommon Gang-gang Cockatoo. The weather was perfect on Saturday, November 24th, when we left Canterbury by car for Mitcham, some fourteen miles east of Melbourne. In a fine piece of scrub were many birds, notably the Speckled Warbler (*Chthonicola*), the Olive-backed Oriole (*Oriolus*), the Crested Shike-tit (*Falcunculus*), the Leaden Flycatcher (*Myiagra rubecula*), Bell-Magpies (*Strepera*), the White-naped Honeyeater (*Melithreptus lunatus*), and Whistlers (*Pachycephalæ*); many were breeding.

The drive to the mountains in the evening was delightful. We arrived at Ferntree Gully about 8.15 p.m.; and, after attending to the inner man, drove on to Tremont. The night was rather warm, so we camped out on the road and talked of birds all through the night. When a few keen ornithologists from widely different parts of the continent get together there are many interesting tales to be told. Whilst one was talking, the others made splendid listeners. The time flew all too quickly, and I for one will never forget that or the succeeding day. We were up at 4 a.m., grilled the chops, boiled the billy, had breakfast, packed up, and were ready for the day before 6 o'clock.

First, we went to a tree where Red-browed Tree-creepers had been seen building in a hollow about eighty feet up. Whilst the rope ladder was being fixed, I went off uphill, accompanied by Messrs. Simson and McGilp to show them the tree in which I had located the Gang-gangs. Mr. Simson had seen them nesting at Casterton, where, I believe, he saw two nests containing one young bird and two young birds respectively. Casterton is probably the western limit of this Cockatoo. It is there found in company with the Black Cockatoo (*Calyptorhynchus funereus*) and the Glossy Cockatoo (*C. lathami*). When I pointed out the hollow to Mr. Simson, he at once remarked, "I don't like the look of it," and added, "If they intend breeding in a hollow, it is invariably a hollow, dead spout." He said also that the birds had a habit of not only biting round the entrance, but also biting off small or even fairly large branches of the nesting tree. These are found littering the ground beneath the tree, just as the leaves of the top branches of a sapling are strewn beneath the nest of the Crested Shrike-tit (*Falcunculus frontatus*).

I was disappointed at Mr. Simson's remarks, and also because the birds were not seen. Just then, I happened to glance at a big hole in a horizontal limb of a large gum, and was delighted to see the head of a male bird appear at the entrance. I excitedly pointed him out to my companions, and the bird allowed us a few minutes to admire him. The time was about 6.30; the sun just showing over the range, and its rays on the bird showed him in all his crimson glory. He silently left the hole and flew down towards the creek without uttering a sound, until he had traversed some eighty yards.

We were at that moment called down to the other party. Arriving at the nesting tree of the Red-brows, we were shown an egg of the Tree-creeper, fresh and broken on the ground. George Falconer decided to go on with the climb, so I hurried back uphill. I had barely taken up a good position for watching the hollow, when I heard the Gang-gangs returning from the creek, and saw the pair approaching through the timber. On arriving at a tree about eighty yards away they alighted. After a minute, the female, uttering her creaking cry, flew nearer into another tree and then went to the hollow. Turning about and facing my position downhill, she sat at the entrance, and raising her crest, went through an amazing bowing performance. First to the left and then to the right, she bowed her head in an up and down motion, slow and rhythmical all the time, uttering peculiar cries at each bow. Finally, she slowly backed down the hollow, where she remained seven minutes. The full performance had occupied eleven minutes. She again appeared at the entrance, where she sat for one minute, and then flew straight across to the creek, about two hundred yards away. After we had waited anxiously for eight minutes, she again returned, accompanied by the male, who left her as before. The female approached the tree cautiously, and, after reaching the hollow, before entering the hole again went through the same bowing performance. The time then was 7.23. After remaining in the nest thirty-four minutes (during which period I believe the egg was laid) she appeared at the entrance. She gazed at the whole party, which by that time had returned, and allowed all a good look at her before leaving. She flew to a tree, and, facing the hollow, uttered a few calls and was rejoined by the male. The rope ladder was quickly got into position, and Mr. Falconer climbed to the hollow 50 feet up. He found the nesting hole to be two feet six inches deep and about ten inches in diameter. The hollow held one egg, snow-white and warm. The climber descended quickly, and the ladder was let down in record time. As, happy and excited, we left the spot, the birds returned. I should add that whilst the female was in the nest I watched a pair of "Red-brows" take building material into a hollow spout of a tree not more than sixty yards away. The party then went on to another gully, where Mr. Bunn had found Red-brows (*Climacteris erythrops*) building. The nest was about 70 feet up.

On the morning of December 2nd we were at the Gang-gang's nest at 6.30. We did not know what fortune awaited us, and as we neared the tree all eyes were glued on the hollow. We got quite close to it before the head of the female cautiously and slowly appeared. She sat at the entrance and gazed at us for three minutes before she left. Again Mr. Falconer climbed to the hole and called out, "Still one egg, much discoloured." We conferred together, and finally sent the "billy" up, and the egg was sent down for our inspection; it was cold but perfectly fresh. As we knew nothing concerning the number of eggs that should form a complete clutch, the egg was returned and replaced in its exact position. As we passed the spot in the evening, the birds were heard and seen, the female being easily recognised by the absence of two of the primaries of the left wing. The tree was again visited at 7 a.m. on December 9th. The female again appeared at the entrance, and sat there until the ladder was over the first limb—in all about twenty minutes. What a sight for a photographer! It was with suppressed excitement that we heard Mr. Falconer call out, "Only one egg!"

After the egg was lowered, we could see that incubation had begun. The egg measured in inches 1.47 x 1.05.

This egg, I believe, is the first authentic specimen taken in Victoria. Both Campbell and North described an egg from Mr. Keartland's collection which measured 1.31 x 1.08.

Mr. Campbell says, "Four to five eggs form a clutch," while North says two eggs. Mr. H. L. White has a pair in his collection, and another set will be awaited with interest.

During the months of January and February I have often seen four or five birds in a party, and only one bird has had the crimson crest. These, without doubt, were an adult pair and their brood. I believe that, in a good season, the birds might lay three eggs, but generally they seem to lay only two, and sometimes as in the present instance, only one.

Correspondence.

WHITE'S JOURNAL OF A VOYAGE TO NEW SOUTH WALES

To the Editors, *The Emu.*

Sirs,—Mr. W. B. Alexander, in the last number of *The Emu*, January, 1924, raises the point as to whom the credit should be given for the descriptions of the new species in *White's Journal*, 1790.

I own the unique copy of this work, which was presented to the famous Dr. David Pitcairn, the physician of St. Bartholomew's, who first drew attention to the relationship of rheumatism and heart disease. On the back of the title page is written, "This copy was presented to me by the Editor, Thos. Wilson, Esq. The plates were selected with great care and coloured by the hand of Miss Stone." Signed D. Pitcairn.

On the inside of the cover also is the signature again and the book plate of Elizabeth Pitcairn. The beauty and excellence of the hand colouring is a delight, and the signature of Pitcairn adds to the value and interest of the volume.

This proves that Wilson was the editor, as Mr. Alexander surmised. I also think that this is the only copy of the work with coloured plates, the work being issued with plain plates. I believe some were afterwards coloured by unauthorised people to enhance their value. The first edition of this work contained the cancelled page on which the name *Merops carunculatus* occurs. This also had only plain plates.

In my Bibliography, now in the press, I have written under White, John, "Authorship of the bird names accredited to Shaw by Sherbom, Ann. Mag. Nat. Hist., Vol. vii., June, 1891. But Swainson had many years before stated this (1834)."

There are ten new names in the work under review: *Fulica alba, Motacilla pusilla, Motacilla australis, Caprimulgus cristatus, Corvus graculinus, Psittacus pusillus, Psittacus discolor,* and

Merops carunculatus, and as synonyms, *Falco albus* and *Procellaria fuliginosa.*

The question of authorship has been discussed many times, and I believe it is now the custom to quote as author of all new species described in a work the name or names of the author or authors of the book. We credit Lewin with the new names in his 1808 edition, although we know that the names were added in this country, probably by Shaw, and were not given by Lewin. I quote Temminck and Knip, and Shaw and Nodder. In the dedications of the *Naturalists' Miscellany,* both these latter names are included.

I think that perhaps less confusion will arise if we quote the name on the title page of the work, except in those certain cases were all is known. Yours, etc.,

GREGORY M. MATHEWS.

Foulis Court, England.
Feb. 26th, 1924.

Sirs,—In a recent issue of *The Emu,* Mr. W. B. Alexander (1) writes as follows:—"It (*White's Journal*) is also of interest to naturalists, because it contains figures and descriptions of a number of the animals (birds, reptiles, fish) and plants met with at Port Jackson. It has generally been assumed that these descriptions were written by White himself, and the few scientific names proposed in the book are *usually* quoted as of White."

The qualified statement as to the attribution of the authorship of the various animals described is not upheld in an abstract of the paper presumably prepared by Mr. Alexander (2), for we there read: "The scientific names proposed for new Australian birds, reptiles and fish in *White's Journal,* published in 1790, have *always* been quoted as of White. The author points out that internal evidence proves conclusively that the descriptions are by English naturalists, and that those in the Appendix with Latin diagnoses, and for which scientific names were proposed, were almost certainly by Shaw."

From this note it would appear that Mr. Alexander was the discoverer of the authorship of the names appearing in the *Journal,* and though the matter may be of little importance, I may, perhaps, be permitted to mention that twenty years ago (3) I credited Shaw with the authorship of the names of the fishes printed in the *Journal.* Yours, etc.,

Museum, Adelaide. E. R. WAITE.

---

(1) Alexander, "Emu," vol. xxiii., 1924, p. 209.

(2) *Ib.* Aust. Sci. Abstracts, vol. 3, 1924, p. 19.

(3) Waite, Mem. N. S. Wales Nat. Club, 1904.

RECORDS OF DISTRIBUTION AND MIGRATION.

To the Editors of *The Emu.*

Sirs,—In the hope that interesting and useful records may be collected and preserved by the Union regarding the distribution and the migration of Australasian birds, I should like to make the following suggestions:—

1. That a number of members, representative of as many districts as possible, should volunteer to act as "District Correspondents."
2. That each Correspondent should supply—
   - (*a*) A list of the stationary birds of his district;
   - (*b*) Any additions to the list from time to time or the name of any bird which has ceased to be resident in the district;
   - (*c*) Dates of arrival and departure of migrants;
   - (*d*) Any other facts worthy of note.
3. That a map be prepared, the districts numbered thereon, and the lists numbered correspondingly.
4. That the results obtained be published in *The Emu* from time to time.

Yours, etc.,

29 Hope Street, Bendigo, Victoria. MARC COHN.

[*Note.*—The Council has agreed to adopt Mr. Cohn's suggestions, and has asked him to undertake the collection of data. Members who are willing to act as correspondents should notify Mr. Cohn. Forms upon which to furnish reports will then be sent to them.—Eds.]

Economic Section

PROTECTION OF QUAIL IN NEW SOUTH WALES

Protection of Quail in New South Wales.—After many years of educational work the bird-lovers of New South Wales have succeeded in making the people on the land realise that one live quail is worth a score of dead ones. There was a time when many farmers regarded quail as merely something to be shot at and killed in wholesale fashion. There were some even who believed that these birds were enemies—mischievous enemies—because they ate a little wheat. Now most farmers know that the quail eats only fallen grain—wheat that would in any case be wasted if it were not thus picked up. The change has been brought about largely, if not wholly, by propaganda work by the publication of informative articles, showing that, for the most part, quail consume weed-seeds, insects, etc., thus rendering a service to the people engaged in primary production. One of the most gratifying results of the dissemination among farmers of a more thorough knowledge of the habits and nature of quail

NATIONAL MUSEUM MELBOURNE

is that in New South Wales these birds have now been given full protection for a period of two years. The Farmers and Settlers' Association is entiled to credit for this reform of a wanton and economically rotten law, which permitted the wholesale slaughter of these birds in all parts of the State. As a matter of fact, the farmers' delegates to the annual conference of the association sought to have quail protected for a longer period than two years. Many of them fought to have a five-years' period of protection, but as other influences were at work, a compromise was effected. The Farmers and Settlers' Association Conference first moved in the matter in 1922. It agreed to a resolution urging the Government to amend the law so as to give greater protection to these birds. Nothing was done, however, and the conference returned to the subject in August, 1923. The association, fortunately, has now so much political power that the Government could no longer ignore its demands—and so we have quail protected in New South Wales for a period of two years. At the end of that period, the position is to be reviewed. In the meantime, desperate efforts are being made by alleged sportsmen and others (who cannot spend a holiday happily unless they are slaughtering quail) to influence the authorities against the enforcement of the Act, in so far as it applies to these birds. As a matter of fact, the new Birds and Animals' Protection will never be reasonably effective while the law is administered under existing conditions. The law is sound enough; so was the old enactment. But it is futile to try and protect wild birds and animals adequately with unsatisfactory administration. The writer the other day heard one of the "honorary rangers" appointed by the Government under this Act declare openly that he would go on shooting quail, because, if caught, "only a nominal fine would be imposed, and the game was cheap at the price." That just about sums up the situation in New South Wales. The much-vaunted new law is no more effective in reality than was the old—and it never will be effective while magistrates are content to impose nominal fines for gross breaches of the Act. This is a matter which the R.A.O.U. should take up and vigorously and incessantly prosecute throughout Australia. In this matter of securing better protection for quail, it should be noted that the farmers stood alone in their fight. They received no assistance from any other organisation. What we need in this country is more co-ordination among the bodies which aim at securing more effective protection for useful and beautiful birds.—W. M. SHERRIE, R.A.O.U., N.S.W.

* * *

CROWS AND THE BLOWFLY PEST.

In a recent report on pastoral country known as the North-east and East of the Burra appears the following:—"Experiments are still being tried to combat the *blowfly pest,* but at present it has not been successful, but the fox *and the crow play a very important part in eradicating much of the trouble.* During portions of the year the fox does good in combating the rabbits and fly pest, but in the lambing season plays such havoc that at this period pastoralists wage war on the fox.

It will be readily seen that the once persecuted Crow is now considered useful, whereas not five years ago, this bird was destroyed in that particular part of South Australia. This tends to show that even without protection by law, the Crow has secured protection for the good that it does. There is no need to protect him in that district at least. I realise, even as big a supporter of the Crow as I am, that protection by legislation will not improve matters, but may do considerable harm, as there are yet hundreds of men who destroy the Crow, and would possibly even go to greater trouble if they were "prevented by law." I believe that in S.A. at least I was one of the first landowners to realise the value of the Crow, and when I mentioned the good it did, I was not well received. Now things have changed. Capt. White has done good work in persuading townspeople that the Crow is a useful bird. As for the country in South Australia, I do not think it will be long before the Crow will be the "most protected bird."

It was extremely pleasing to me to see mention of the Crow in this report on a piece of the country in which I have never been. The increase in Crows in S.A. has astonished me. I heard the other day that "Crows are in flocks around Peterborough and Terowie, and that no one is trying to shoot them." So the "Black Devil" is coming into his own at last.—J. Neil McGilp, R.A.O.U., King's Park, South Australia.

Camera Craft

Notes from Merriwa.— Appended hereto are a few notes on various species of our birds that may be of interest to readers of *The Emu*:—

Uroaetus audax. Wedge-tailed Eagle.—On September 30th, 1923, I found a nest containing two young birds, on the edge of which was a dead rabbit with a spring-trap still attached to its leg. The trap weighed 23 ounces, and must have been a clumsy obstacle for the Eagle to manage. These birds are common in the district, and there is no doubt that, where possible, they prefer rabbits as food to lambs. It is a sheep-raising country, and yet in nearly 10 years' experience, which includes well over 200 nests observed, we have only two or three times found lambs on the nest, while I have seen the remains of as many as 14 rabbits on one nest alone.

Epthianura aurifrons. Orange Chat.—Most interesting visitors this year were five or six of these little birds, including two beautiful males. They appeared on November 30th, and stayed for about a week, in the vicinity of a public road. This is the first record of the bird in this district, and must be almost a record for its most eastern range. We are not more than 90 miles from the coast, and just within the eastern watershed. No doubt, they were driven by the dry conditions out of the interior. Its congener, the Crimson Chat (*E. tricolor*), was also noted breeding—its first appearance here since 1914.

Meliphaga chrysops. Yellow-faced Honeyeater.—On November 6th, 1923, when on a short trip to the coast, I discovered a nest containing one egg of this Honeyeater and one of a Pallid Cuckoo. On the following day, to my surprise, the Cuckoo's egg was alone in the nest. What removed the Honeyeater's egg? If a marauder, he would surely have taken both eggs. A fascinating theory that occurred at the time was that the Honeyeater, objecting to the intrusion of the Cuckoo, had built another nest, and removed his own egg thereto; but a thorough search for a new nest failed to reveal anything.

Nest of the Plum-headed Finch

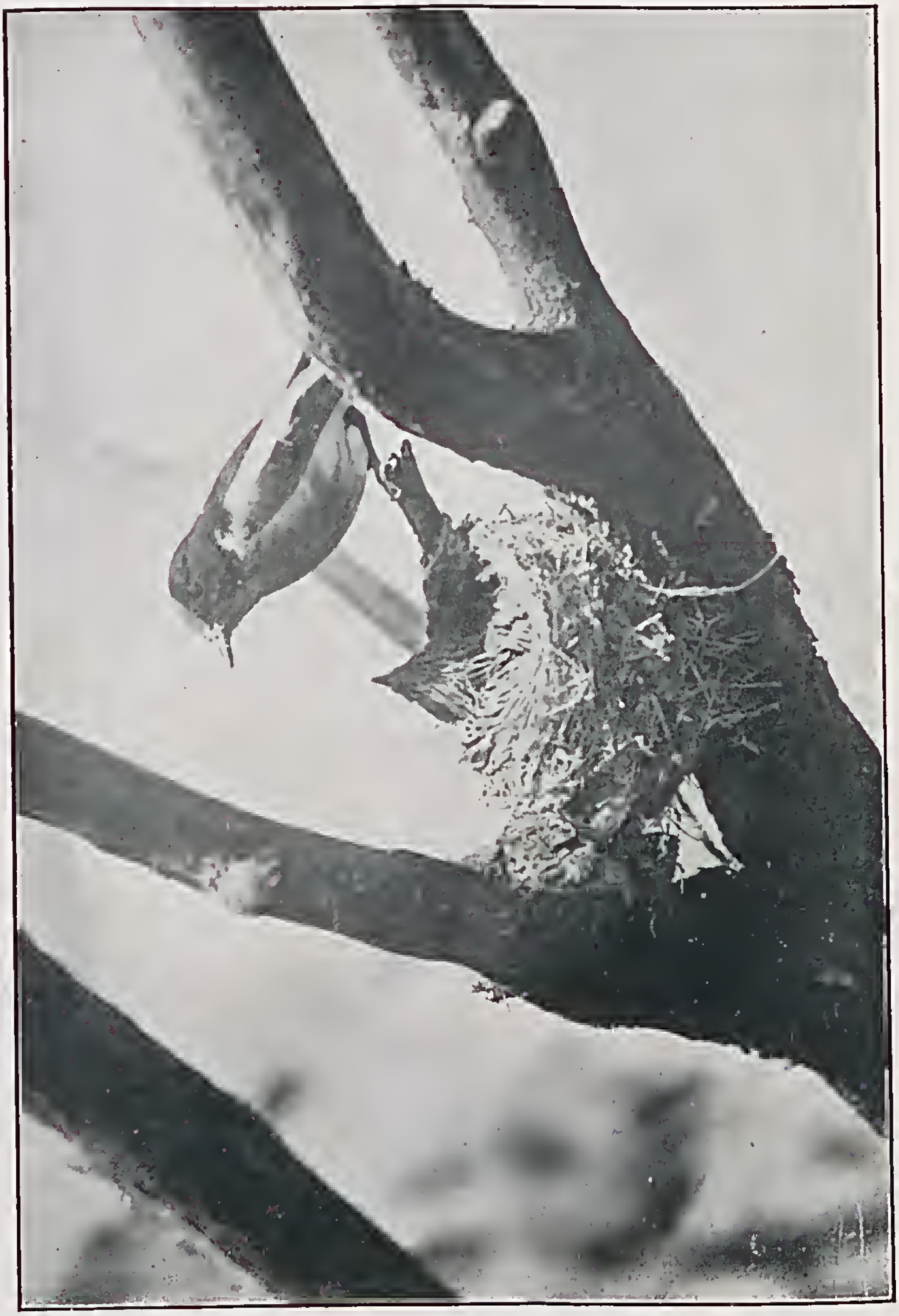
Aidemosyne modesta. Plum-head Finch.—I enclose a photograph of a nest containing five eggs *in situ* in a clump of Aloes (*Cactus sp.*). I regret the bird is not at it. This is our first record of the bird in the district.—B. C. J. Bettington, R.A.O.U., Terragong, Merriwa (N.S.W).

The Cuckoo and the Red-capped Robins.—During the season 1922-23 I found six nests of the Red-capped Robin (*Petroica goodenovii*), all of which contained an egg of the Narrow-billed Bronze Cuckoo (*Chalcites basalis*). From the similarity of the eggs and the fact that I saw only one Cuckoo near these nests, I feel reasonably certain that the same Cuckoo laid all the eggs. The owners of the first nest were victimised twice; the Cuckoo laying again after I had removed her first egg. Apparently the Cuckoo laid every second day. On September 25th, I found the first nest, containing only a Robin's egg. On the 26th, it contained only a Cuckoo's egg, which I removed. On the 28th, the Cuckoo laid again in the same nest.

On the 29th, I found nest number two, containing two Robin's eggs, and the 30th only one Robin's egg, and also a Cuckoo's. Later I found nests three, four, and five, also victimised. On November 5th, I found nest number six, which, owing to the advanced stage of incubation of the eggs, was the only one at which I had hopes of securing a picture. The tree, growing on the edge of an embankment, was in a poor position for photography, being capable of approach only from one direction. Several pictures taken during afternoons were spoiled owing to the sun being in an unsatisfactory quarter, but the accompanying photograph, obtained in the morning, was more satisfactory.—Marc Cohn, R.A.O.U., Bendigo.

Stray Feathers

North Tasmanian Notes.—On a recent trip in car and on saddle round the north-west coast of Tasmania, as far as Balfour, about fifty miles south of Cape Grim, I made a few memoranda which may be of interest to some of your readers. First, a single specimen of the Black and White Fantail (*Rhipidura leucophrys*), of whose presence in the Huon district I notified you some years ago, was seen brandishing his misfitting tail on the pasture at Black River, near Stanley. At the latter place, also, the Brush Wattle-bird (*Anthochæra chrysoptera*) has now become common, though unknown there up to within the last few years. On the vast heathy plains about the mouth of the Arthur River, the plaintive piping of the Grass Bird (*Megalurus gramineus*) was much heard. This bird is rare in many parts of Tasmania. In the low coastal scrub south of Temma a flock of about twenty White Cockatoos was seen. Forty years ago these beautiful birds could be seen in large flocks in the grain fields; now the verdict is: "We seldom see them."—G. Murray Anderson, "Raggal," New Town, Hobart.



Red-cap Robin at nest containing young Cuckoo.

Photo. by Marc Cohn, R.A.O.U., Bendigo.

NATIONAL MUSEUM MELBOURNE

Australian Sea-Birds.—Through the courtesy of Mr. J. A. Kershaw, F.E.S., Curator, I have been permitted to look over the bird-skins in the National Museum. I have noticed three species of sea-birds that are not on any Australian list, so far as I am aware, namely: — Two specimens of the Antarctic Petrel (*Thalassoica antarctica*), "from and identified by J. Gould"; one from South Australian seas, the other from Australian seas; one specimen of the Snowy, or Ice, Petrel (*Pagodroma nivea*), "from and identified by J. Gould," marked Australian seas; and a specimen of the Antarctic Skua (*Megalestris maccormicki*), — see p. 119 taken by N. Batchelor, at Queenscliff, Victoria. When one considers the long Antarctic night and consequent frozen rigours of the far south, it is not surprising that the above-mentioned Antarctic-breeding species should occasionally make their way into lower and more temperate latitudes in the seas of Southern Australia.—A. J. Campbell, F.A.O.U., Melbourne.

Reviews.

["A Practical Handbook of British Birds." — Edited by H. F. Witherby, M.B.E., F.Z.S., F.R.G.S., M.B.O.U., assisted by authors of the various sections: Dr. Ernest Hartert, Miss Annie C. Jackson, H.M.B.O.U. (Mrs. Meinertzhagen), Rev. F. C. R. Jourdain, M.A., M.B.O.U., and Messrs. C. Oldham, F.Z.S., Norman F. Ticehurst, M.A., F.R.C.S. It contains over 1500 pages of letterpress, with 30 plates coloured and monochrome and over 350 text figures. Demy 8vo. 2 vols. (bound as 3) £4/10/- net.]

The issue of Part XVIII. completes a publication of the greatest value to all working ornithologists and bird-lovers. Originality in plan, practical utility and accuracy of detail are claimed for this work, which is the result of great labour and much research.

The information under each species being divided into sections and given in uniform order is easy of reference. All the birds on the British List are included.

Keys to the Orders, Families, Genera and Species are given as guides to identification.

Descriptions are more complete than any hitherto published in book form. They include in each species the plumages and moults of both sexes from season to season, as well as the changes from nestling to maturity under separate headings.

Characters and Allied Forms is a useful section in which the chief characteristics of the species and how it differs from near allies on the British List are shown.

Field Characters.—In this section discriminating notes are given of points of distinction in the bird's appearance "in the field," of flight, notes and song, and other habits. The section dealing with breeding habits deals concisely with breeding habitat, nest, site and construction; eggs, colour, number in clutch and size; breeding season; incubation period and share of sexes, and fledgling period where known. The food, so far as is known, is given for each species. Distribution is dealt with in detail for the British Isles and in more general terms for abroad. Migrations and passage movements, as observed in the British Isles, are detailed in a special section. The area of arrival and departure and the usual (as well as the extreme) dates are given.

Both in the plates and text figures the aim has been to illustrate characteristic features either in the colour or structure of each bird. The young of British breeding species are also illustrated where they differ conspicuously from the adult. The greatest care has been taken to insure accuracy of detail in the illustrations. Apparently it will be years before such a book of reference is available for Australian field workers.

* * *

["A Natural History of the Ducks."—By John C. Phillips, Associate Curator of Birds in the Museum of Comparative Zoology at Harvard College. With plates in colour and in black and white, from drawings by Frank W. Benson, Allan Brooks, and Louis Agassiz Fuertes. Boston and New York: Houghton Mifflin Company, The Riverside Press, Cambridge, 1922.]

This far-reaching and important work is to be completed in four volumes, quarto size. Two volumes have appeared, copies of which have been deposited in the library of the R.A.O.U., "with the compliments of the author." Every member of the Royal Ornithologists' Union spontaneously extends his or her hearty thanks to Dr. Phillips for this most handsome and valuable gift.

Although strictly scientific, the work is popularly written, and so easy to understand "that he may run that readeth." The "Introduction," dealing with "General Distribution," "Plumage," "Flight," "Special Senses," "Courtship," "Nesting," etc., is most fascinating, compelling the reader to follow closely every line, with no temptation to skip. Space alone forbids a lengthy notice: members for themselves must read the books.

Dr. Phillips begins with the "Dawn of Creation"—Pleistocene times, when the huge, flightless, goose-like bird (*Cnemiornis*) roamed the New Zealand regions, probably in the form of a gigantic Cape Barren Goose, and contemporary with the Moas. It is impossible to draw "a hard-and-fast line between geese and ducks," and, as in other avine families, osteology, as an aid, has been disappointing. Tree-Ducks, typical of the tropics (of which two species are Australian) are often placed among the true ducks. Dr. Phillips believes they well deserve the rank of a sub-family by themselves. The well-known Australian Black Duck ranges widely into islands of the Pacific. The unique flightless duck (which is little known) of the Auckland Islands, the Musk, the Pink-eared and Freckled Ducks, are considered to be "the most peculiar and aberrant members of the tribe." Most interesting is the distribution of the sexes in migration. Dr. Phillips writes: "True geese migrate in pairs and families.

Not so with the ducks, for it is quite certain that among most of our (*i.e.*, American) common ducks, the females and young start first and go farther, while the males come later, and these males even stay in a more northerly winter area." And, like the Golden Plover, some Ducks do not return by the same route. Members of the duck tribe in flight travel at various estimated heights, up to 5,000 feet altitude, while the speed is about forty to fifty miles an hour, and probably never exceeds sixty miles. "Aeroplanes travelling at not more than 75 miles an hour have managed to pick up and kill ducks over the rice-fields of California."

Ducks "display" at almost any time of the year, except when the birds are in full moult, and the Doctor adds, with an unconscious touch of humour, "Ducks that are definitely paired practically cease to display." The majority of fresh-water and diving ducks nest on the ground, while nearly all the tropical species nest in trees, not necessarily in hollow limbs, but frequently in deserted stick-made nests of other birds. All line their nests with down, except the Tree Ducks. Clutches of eggs vary according to the species from two to fourteen* in number. The typical term of incubation, in accordance with the natural law of periodicity, is twenty-eight days, but the term varies in some species from twenty-four to thirty-four days. Few males assist in incubation, among the fresh waters, and amongst the diving ducks, none.

The process of moults—two annually—although mystifying, is not without interest. Soon after the females commence to incubate, the males retire and begin to change to the "eclipse" plumage. "During the eclipse, which is a much plainer and less-differentiated dress that remains in its full development for only about three or four weeks, the primary wing-feathers, as well as the tail-feathers, are moulted, and the bird becomes flightless." This flightless stage reminds one of Black Swan "flappers." De-sexing ducks reacts on their plumage phases.

Dr. Phillips is sceptical about ducks carrying their young, in their bills, from nesting trees to the ground, or water, as the case may be. Now is the opportunity for country observers to send in their testimony of any such instances witnessed. However, Dr. Phillips sounds a warning note that must be heeded. "Among the vanishing species," he states, are "several Australian ducks," including the Auckland Islands Mergauser, or Flightless Duck, the only flightless anatine bird in the world. It is up to Australians to endeavour to save this remarkable "missing link."

A further notice will appear in *The Emu* when the other volumes of this fine work have been received—a criticism more particularly dealing with the history of those species of Ducks, which are Australian.

Obituary

John Cross, B.A., Hon. Sec., R.A.O.U.

The R.A.O.U. has suffered a sad loss in the unexpected death of the Hon. Gen. Sec., Mr. John Cross, B.A. Mr. Cross, a true lover of nature, birds, and all that was pure and good, though a member of some years' standing, took office only last year, on his retirement from the position of Senior Inspector of schools. He conducted the business of the Tasmanian Annual Congress in fine style.

He took ill in church on Sunday, was operated on at midnight, but sank and died at 7 a.m. on Monday, June 23rd, His place will indeed be difficult to fill.

One of the best and most lovable of men.

Notes

Latest advice from Queensland members, in whose hands the arrangements have been placed, fixes the week beginning October 13th for the Congress. The party will leave Brisbane on Monday, October 13th. The Congress will begin at Rockhampton on October 15th, the chair being taken by His Excellency the Governor of Queensland, Sir Matthew Nathan. Members who intend to be present should notify the Secretary in order that notice of the final arrangements may be sent to them later. The camp-out is proposed for Keppel Island and Yeppoon.

"Journey to Central Australia," by F. L. Whitlock, *The Emu*, XXIII., page 248. Specimens of the following species, not indicated by a dagger (see footnote, page 254) were obtained:—*Lophophaps plumifera leucogaster*, *Barnardius zonarius occidentalis*, *Psephotus varius*, *Aphelocephala castaneiventris*, *Megalurus gramineus*, *Lacustroica whitei*, *Stigmatops indistincta*, *Meliphaga penicillata*, *Chlamydera guttata*, and *Corvus cecilae*.

The suggestion has been made and approved by the Council of the R.A.O.U., that the Lyre-bird should be introduced into Tasmania, where it would be free from molestation by foxes. It is also thought desirable that Victorian birds be obtained, as the difficulties of transport and acclimatisation would be less serious. Members suitably situated are asked to communicate with the Secretary if they consider that they would be able to procure a pair or two of the birds, unharmed, for the purpose mentioned.

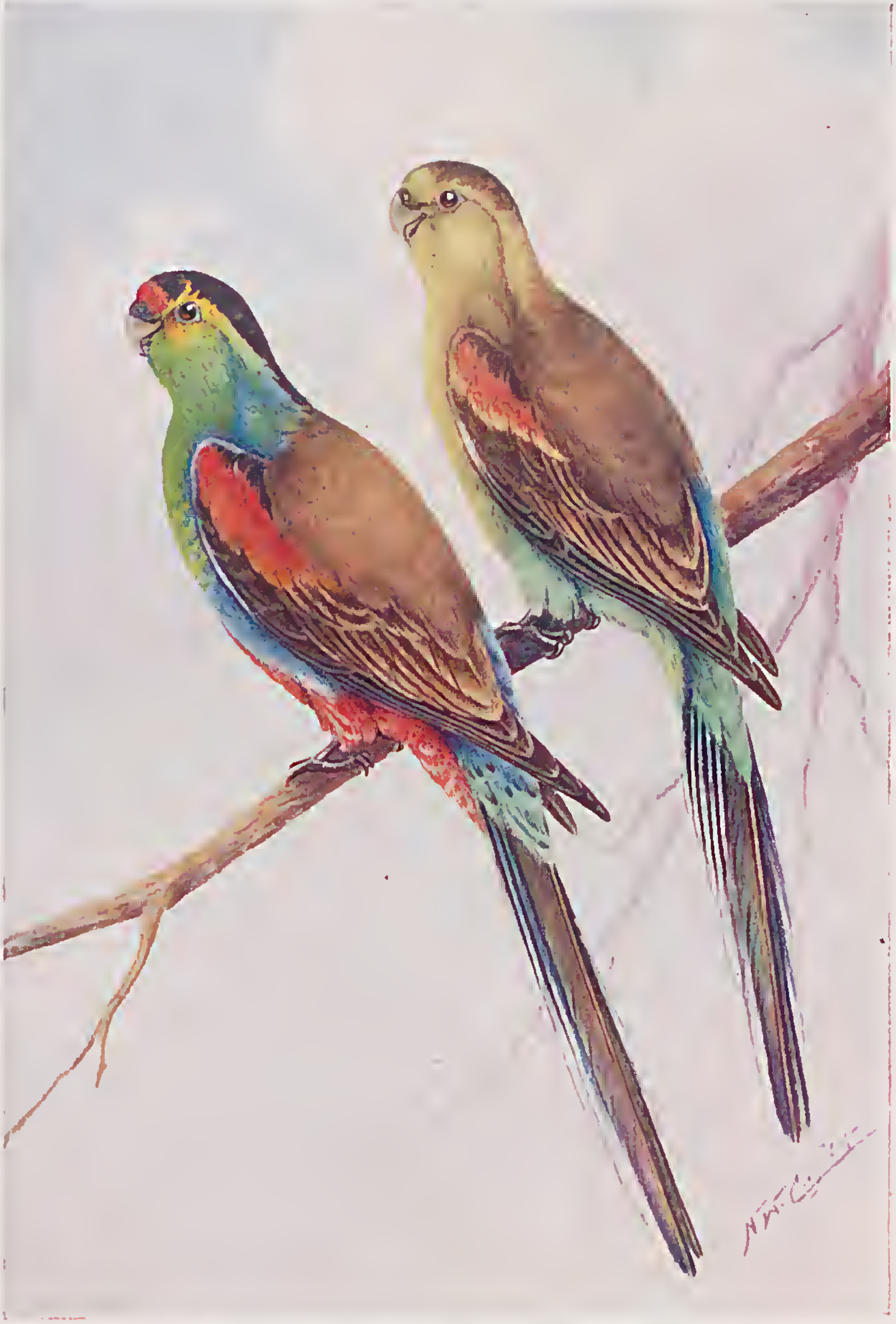
We are pleased to note the election of Gregory M. Mathews, R.A.O.U. as Vice-President, British Ornithologists' Union.

Mr. Robert Hall, C.M.B.O.U., Sometime President R.A.O.U., has been elected an Honorary Fellow of the American Ornithologists' Union, and Mr. W. R. Oliver, of Wellington, N.Z., has been elected a Corresponding Fellow.

The Date of Publication was July 4th, 1924.

MUSEUM MELBOURNE

NATIONAL MUSEUM MELBOURNE



The Paradise Parrot (*Psephotus pulcherrimus*)
Left: Male. *Right*: Female.

For Letterpress See
"The Lost Paradise Parrot," *EMU*, Vol. XXII., pp. 4-17
"Meeting the Paradise Parrot," *EMU*, Vol. XXIV., pp. 30-32.
"The Paradise Parrot Tragedy," *MATESHIP WITH BIRDS*, (Chisholm), pp. 171-188

The Emu

Official Organ of the Royal Australasian Ornithologists' Union

" Birds of a Feather."

Vol. XXIV.] 1st OCTOBER, 1924. [Part 2

A Contribution on the Life-story of the Australian Pratincole

By Dr. W. MacGILLIVRAY, C.F.A.O.U., Sometime President, R.A.O.U., Broken Hill.

NATIONAL MUSEUM OF MELBOURNE

My first recollection of the Australian Pratincole (*Stiltia isabella*) was in the early seventies, when as a small boy I lived on a cattle station on a tributary of the Flinders River, in North Queensland. The Pratincole was known to me as the Rain-bird, from a habit it had of flying backwards and forwards over the plains on long Swallow-like wings, skimming the ground or rising high in the air, and calling persistently during the time of the thunder-storms that ushered in the monsoonal rains of the summer months.

In November, 1877, I was travelling on horseback from Richmond Downs to Hughenden, accompanied by a black boy. As we crossed an ironstone-gravel ridge on a plain, our attention was attracted by one of these birds running off the ridge, fluttering, stumbling, and trying her best to induce us to follow her. We searched the ridge for a nest, without success, then we rode slowly away, watching the bird over our shoulder till we noted the spot to which she returned by short runs, with frequent halts, till she finally arranged her eggs and sat upon them. Keeping our eyes on the spot, we went back, and found the pair of eggs on the ground, amongst the stones which they, being a darkly coloured set, resembled.

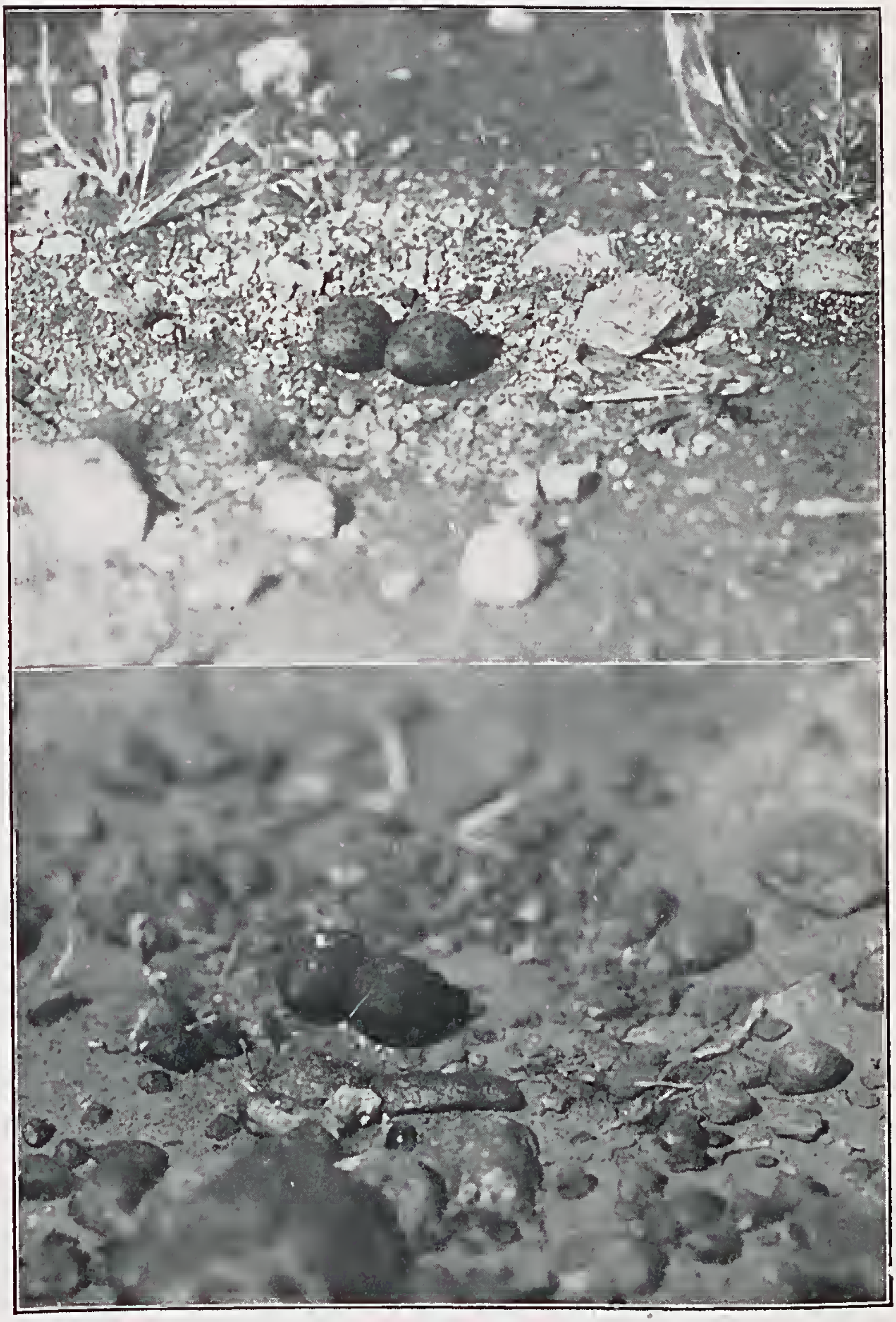
In 1898, a friend returning from Morden Station, in Western New South Wales, to the Western District of Victoria, where I was then living, brought me a pair of unblown eggs of this species. These were of the sandy-colored variety, and had been taken during the last week in November. My brother sent me, from the Gulf District in Queensland, two pairs of eggs that were taken in the same year.

It was not until the 8th November, 1903, that I came across this bird again. I was driving with a friend along the Menindie Road, about 20 miles from Broken Hill, on an ironstone-gravel plain, scantily covered with herbage. Remembering my last experience, it did not take me long to find a pair of eggs with a few small pebbles and sticks gathered round them. On this and the following day, several more birds were seen either on the plains or feeding along the oozy margin of a long and shallow swamp, where we had camped. It was a year of plenty in Western New South Wales, and these birds were all over the district, wherever conditions suited them. They bred freely after their arrival late in October or early in November, and left after the young were able to fly in March. They were not again noted till 1909, when a favourable season at Broken Hill, and drier conditions in Central Australia and Western Queensland, sent them down earlier than usual. They were seen on the plains near Fowler's Gap, 70 miles north from Broken Hill, during the third week in September.

The following years were favourable ones. Early in December, 1910, after the eggs had hatched out, it was noted that the young ones sought shelter in disused rabbit burrows from their many enemies. They were feeding with their parents round about the burrow, and rushed to hide in it when the old bird gave the alarm. This they did when man or beast approached or when a Hawk or a Crow flew overhead.

This area was a patch of open country, sparingly covered with herbage growing amongst limestone or ironstone pebbles and stones. Being within three miles of Broken Hill, it was favourable for making observations. In 1911 the birds arrived in numbers, and started to nest in November. My son and a boy friend found six nests on this patch in one morning. After the eggs in these hatched, we found several pairs that were sheltering their young in rabbit burrows. The tracks of the chicks were plainly seen on the soft sand at the entrance to the burrows. Their presence there was confirmed by digging them out, or by the parent birds' concern when we were near the burrows, and their evident satisfaction when we left them. Heavy rain in the middle of December resulted in all the birds leaving except the pairs that had young.

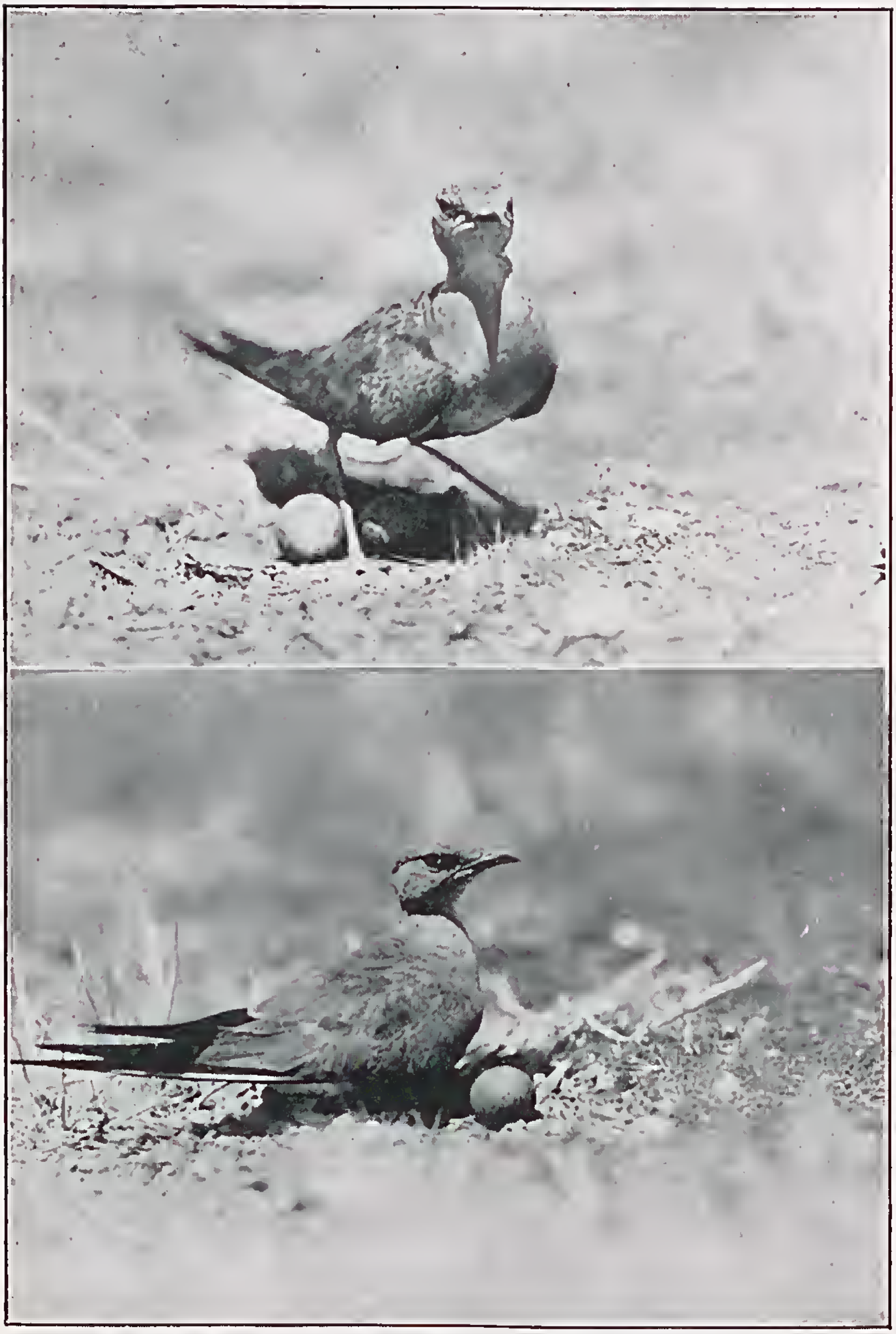
In 1912 there was another exceptionally good season. Grasshoppers and caterpillars were a pest, and these birds came down in numbers. Two exceptional clutches were noted, one of three and the other of four eggs. The birds arrived in October, and started to nest early in November, flocks of six or seven being quite common on our favourite patch. Several lean years followed, and the birds did not visit us in numbers. Only a few odd birds were seen during the early summer of 1915, and they did not remain to breed. The war intervened, and it was not until 1920, when on my way to Cooper's Creek, that I saw them again on the gibber country that is situated between Tib-



Nest and eggs of Australian Pratincole.
Upper, Light Set; *Lower*, Dark Set.

Photos. by Dr. W. MacGillivray, C.F.A.O.U.

[illegible] MELBOURNE



Australian Pratincole, Nest, and Eggs.

Photos. by Dr. W. MacGillivray, C.F.A.O.U.

booburra and the Queensland border. I saw them later also on the stony plains bordering the Wilson River, and north of Cooper's Creek. They came to within 100 miles of Broken Hill, but no farther. In 1921, I saw a few on the plains 60 or 70 miles out of Broken Hill on the White Cliffs Road.

Last year, 1923, we made a round trip through South-western Queensland, and back starting in August, but we saw none of these birds until on our way back, when we found them breeding on the stony plains bordering the Wilson River. Both eggs and young were seen early in September. For the rest of our way back we did not see any.

On the 12th of October, Pratincoles were within 100 miles of Broken Hill, and a few pairs put in an appearance on our observation patch a week later, the first nest being found on the 19th October. This nest, the usual ring of small pebbles on the ironstone portion of the patch, contained a pair of darkly-coloured eggs. After this, either Mr. Riddell, of the Technical College; myself, my motor-driver, who had been with me for many years, or all of us, paid bi-weekly visits to the patch. We found the birds arriving in increasing numbers until the third week in November, when their numbers attained the maximum. Most of them arrived in pairs, and started to nest immediately.

Desert birds are like desert plants, and desert insects; they must perpetuate their kind as hurriedly as possible when conditions are favourable, and the hurry of the one is the hurry of the other, as the birds feed themselves and their young on the insects, and the insects live on the plants. The latter, as quickly as possible, flower, ripen and scatter their drought-resistant seeds, which lie hidden in the sun-baked earth or are blown about by scorching summer winds, often for years, till rain falls in sufficient quantity to make germination and reproduction again worth while. The grasshoppers and other insects hasten in the same way to complete their metamorphosis, and bury their eggs before they themselves are eaten or die. The birds as soon as their young can fly, leave again for Central Australia, Western or North Queensland, or to the limit of their migration, the islands of the Malay Archipelago. During last spring and summer all of Western Queensland and Central Australia was in a bad way for herbage and water; consequently the birds came down to us in numbers. Many stayed only a few days, and passed on; others nested, but very few succeeded in rearing their young. Hawks soon knew of their arrival, and on one day a Whistling Eagle and a pair of Kestrels were quartering the patch on the look-out for young birds, but were too slow for the adult birds. It was not so, however, with a Little Falcon, which so often chooses the swiftest flying birds for its prey. It was not the actual numbers that the Falcons killed, but the disturbing effect of their presence that did so much harm.

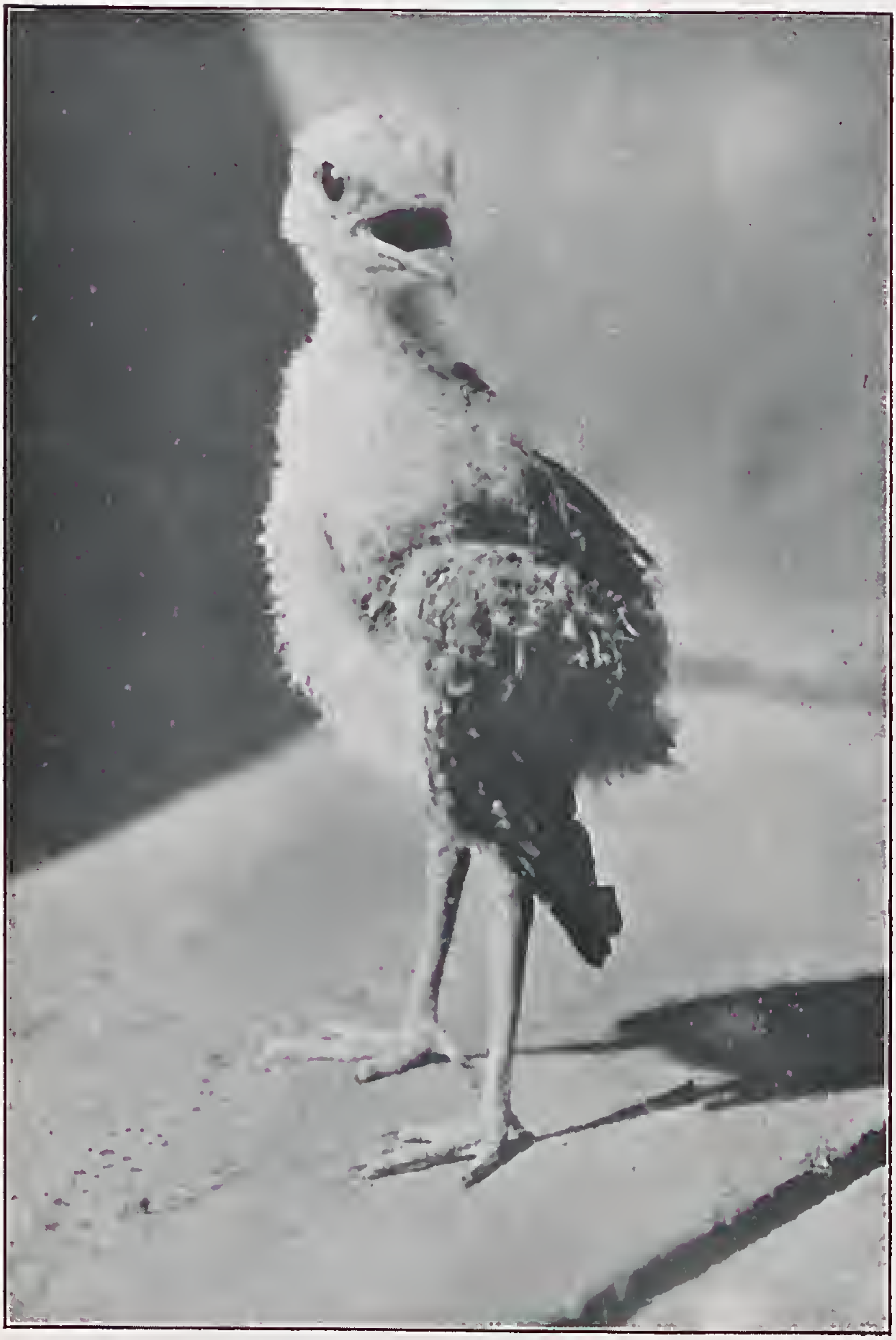
The Crows—both the Raven and the Short-billed Crow, driven in from the surrounding country by want, arrived in numbers to search the nesting area for eggs or callow young. To combat these the Pratincoles have found it best to hide their young in the disused burrows of rabbits and goannas, or other lizards.

To describe their feeding habits I cannot do better than quote from my notes made on the 16th December, 1923, when my son (who had recently arrived from Melbourne) and I went out to look up these birds. "We saw three, and watched them. Two of these came along past us, foraging on foot for grasshoppers and other insects. One bird made a short run, and bobbed up and down after the manner of Plovers, then stood erect to wait and watch, often from some slight eminence, till movement betrayed the presence of some insect. If its quarry were in the grass, and near at hand, the bird would run quietly towards it in a crouching attitude, made a sudden final rush, and capture it. If the insect were flying past, it would be captured by a short, Swallow-like flight, after which the bird resumed its watchful survey of the area.

The birds come from the north usually in October and November, and start to nest immediately. No scraping or depression is made, the eggs being placed on a bare space about 2 inches in diameter, which is surrounded by a ring of small pebbles. The clutch of eggs is almost invariably two. I have seen only one clutch of three and one of four. Our experience teaches us that the birds are shy. The sitting bird usually leaves the nest before it is closely approached, and before it thinks it is observed. It sneaks off quietly in a crouching attitude till some distance from the nest, then it runs quickly away, or rises in the air in light, lilting and graceful flight, alighting some distance away, to stand erect and watch. Should her eggs be approached she will return and use all the wiles common to her tribe to lure one from the vicinity of the nest, flapping and shuffling along the ground with half-outspread wings. In doing this she will often come to within two or three yards of the intruder. These actions are even more distressful should the birds have young, when the male often joins in the efforts to lead one away.

The period of incubation is 21 days. The nestlings remain in the nest for a day after hatching, and are very difficult of detection, as they flatten out, and keep absolutely still when approached. They are coloured to assimilate with their surroundings. They are clothed in a rusty coloured down, with black vermicular markings on the head and back, the under surface being covered with a uniform rusty down. The legs and bill are bluish slate, the eyes are open, and the irides are brown.

The young soon leave the nesting site and run with the parents, who take them to some disused burrow of rabbit, goanna or other lizard, where they seek shelter when any danger approaches. They keep to the same burrow till they are feathered. They come out at the call of the parents, and feed with them in the



Young Australian Pratincole, 10 days old.

Phoo. by I. H. MacGillivray, R.A.O.U.

vicinity of the hole, but rush into it when either parent gives the alarm.

My son and I noticed one adult bird keeping to one locality, so we walked towards her. She immediately became anxious, calling out, and shuffling along the ground quite near to us. We made an exhaustive search and narrowed the area down to a few square yards. We then retired to a distance, and watched through our field glasses. The bird was seen to go over to a bare patch, on which was a goanna burrow. On our pretending to walk towards her, she immediately ran away. We went back and waited for some time. She returned to the burrow, and was seen to have a young one running with her. My son moved towards her, whilst I kept watch. He had not gone more than a few yards when the young one ran towards its mother as though called, and then disappeared into the burrow. We examined the hole and took a photograph. The entrance measured 3½ inches horizontally by 2½ vertically, and the burrow slanted in for about a foot, then turned at right angles and ran in for another foot. The young bird was crouching at the end of it. His footprints and excreta were seen on the soft earth at the entrance. About ten days old, he could run well, outspreading his little wings when pressed. When a little distance away, he would squat amongst the grass or stones, and was then difficult to find.

He was still in down, now a greyish fawn with brownish longitudinal vermiculations. The wing and tail quills and the feathers of the body were sprouting. The bill was brown, the gape being pale flesh color, and the legs and feet were leaden. Even at this age he had, when standing, the bobbing movements of his parents.

Wild Lyrebirds in Sydney Suburbs.—Sydney is fortunate in having several parks containing virgin bush, and in these residents can hear and observe many of the native birds. It is pleasing to note that some comparatively rare species are glad to remain in the precincts of habitation if given protection. Whip Birds are to be found on the harbour foreshores, while a pair of Pheasant Coucals have lately made themselves at home in Mosman, about 20 minutes' run from the G.P.O. In the suburb of Gordon, Lyrebirds are still to the fore. Mr. B. E. Minns states "that he not only hears them almost daily, but occasionally sees the male bird performing his peculiar gyrations, with vocal accompaniment, in some sunlit bush glade. In the early morning he has watched him turning over the litter placed under an orange tree, in search of food, within a few yards of the house. A favourite imitation is the sound of numbers of children in the playground of a nearby school." The bird also takes delight in copying the clicking of a typewriter, which is worked on the verandah of a house facing the scrub.—A. S. LE SOUEF, C.M.Z.S.

Observations on the Mutton-birds of Phillip Island, Victoria

By F. LEWIS, R.A.O.U., Acting Chief Inspector, Fisheries and Game Department, Melbourne.

On Phillip Island Mutton-birds, or Short-tailed Petrels (*Puffinus tenuirostris*) generally begin to arrive about November 20, for the purpose of laying, although the full flight does not take place until the 26th, and it is at its maximum from that date until November 30th. The first birds arrive at their nesting-places just after sundown. The actual time of arrival at the most outstanding place on the island, *viz.*, Cape Woolamai, being about 7.45 p.m., on November 30th, but as the days lengthen the time of arrival gets a little later. The birds continue to arrive until about 9 p.m. At first the flight is silent, but after about a quarter of an hour occasional calls are heard both from the birds overhead and from those in the burrows. Gradually the calling increases in volume until in half an hour's time the whole rookery is in quite a turmoil of screeches, calls and cooings. This gradually quietens down, although the volume of sound may rise again at intervals during the night. A number of the birds seem to sit about on the surface of the ground all night, scarcely moving at all, while some walk around quietly and slowly. All the burrows seem to be occupied. Many of the birds in the burrows make much effort to clear out the loose sand, but practically no attempt is made by the birds on the surface to commence new burrows. Some few birds, which apparently cannot find unoccupied burrows, investigate a few holes, but, finding them occupied, sit quietly on the ground. Most of these birds sitting about on the ground were found on examination to contain eggs. Owing to the fact that the drifting of loose sand on all the rookeries is now serious (during 1923 the blown sand covered up two or three of the large rookeries and is gradually extending across the Cape itself), many birds which last year had burrows in these areas are now without homes. The birds make little or no effort to clear out the burrows which are covered with loose sand, probably realising that it would not be safe to do so.

The departure of the birds begins at the first sign of dawn. They are not then nearly so noisy as at the time of arrival, although in every burrow birds can be heard chattering and cooing. On leaving the burrows the birds make straight for a clear place to take off, preferring if available a steep sand-blow or a cliff. A few vigorous flaps of the wings are given, and the bird then rises with a slight jump. It is quite possible, however, and not at all an infrequent practice, for the birds to take off from a clear flat area. It seems desirable for the bird to have a take-off ground as clear as possible to get its run, just as an aeroplane requires a clear area in which to gather speed before rising. Any obstruction such as grass or other growth seems to prevent the birds from leaving the ground.

EXPERIMENTS REGARDING THE RETURN OF BIRDS DURING THE SEASONS 1920—1923.

Sixteen burrows were selected and numbered in 1920, and the adult birds found therein were banded. In 1920 coloured celluloid rings were used, but in 1921, 1922, and 1923, soft metal rings with a number stamped thereon were utilised. As a result of these markings, it has been proved that many of the Mutton-birds return to the same burrow, or adjacent ones on the same rookery, in some cases with an unmarked mate, but sometimes the same pair will return to the same hole. In 1920 sixteen birds in twelve burrows were marked with celluloid rings. In 1921 four of these burrows were not used by the birds. Amongst ten birds examined from the remaining burrows, it was found that six had returned to their old burrows; in one case a pair of marked birds was found in the burrow used the previous year. In 1922 four marked birds returned, two of these being an original marked pair, while another pair marked in 1920 was found in an adjoining burrow. In 1923 four marked birds again returned to the same burrows, while the pair in the adjoining burrow also came back. Another marked bird was found in a neighbouring burrow. Summarised, the results from the 1920 markings show that, over a period of three years, ten out of sixteen birds returned to their old holes, while one returned to a burrow near its original hole. Two original birds marked in 1920 returned to their old home. In 1921, twenty-two birds were marked with metal rings in twelve burrows. In 1922, eight of these returned to their original holes, and one was found in an adjoining burrow. Two of the returned birds were an original pair. In 1923 seven birds returned, two being an original pair, and four others were found in adjoining holes. Summarised, the 1921 markings show in two years a total return of ten birds out of 22 to their original holes and five to adjoining holes. Two original pairs of birds returned, one pair for two consecutive years.

Out of 44 birds marked, 22 have been shown to return to their original holes in the different seasons and six others have been found in adjoining holes. No search was made for the marked birds in holes any distance away. As the rookery where the selected holes were situated is approximately 400 ft. square, and contains some 500 holes closely packed, it is remarkable that such a percentage of the birds should return to their original holes. It would seem, therefore, that once a bird has laid its egg in a particular rookery, it does its best to return to that same rookery every year.

An instance of the homing instinct of the birds may be quoted. Across a pathway leading to the camp of the observer was apparently a rabbit warren, one entrance to which was in the middle of the path. This hole was filled in with sand and trampled hard. One evening a bird was noticed to run on to this patch of sand and walk around slowly, apparently looking for something. It passed several burrows, but made no attempt to enter. On returning to the sand patch it sat for a minute or two, and then went off again on a short tour of exploration. This procedure was repeated about five times. Finally the bird returned, and began to scratch on the site of the old burrow. The next morning the burrow was open and was occupied during the season by this bird and its mate.

OBSERVATIONS ON THE QUESTION AS TO WHETHER THE MUTTON-BIRD LAYS AGAIN IF ITS EGG IS TAKEN.

The opinion is held widely amongst the Mutton-bird "eggers" frequenting the rookeries on Phillip Island that when the Mutton-bird is robbed of its egg it lays again. This belief has its foundation in the fact that in working a certain portion of a rookery "eggers" get fresh eggs every day, and they naturally assume that this is due to the fact that the birds lay again after being robbed. Careful investigation seems to point to the fact that while fresh eggs are certainly taken each day, they are not obtained from the same burrows, except on odd occasions. It is not every burrow that will yield an egg, but on most of the rookeries the burrows are packed so closely together that an "egger" working a comparatively small area every morning during the season will soon accumulate a fair number of eggs. Then again, the fact that such a large number of young birds reach maturity, although the burrows have been robbed every morning for a week during the egging season would seem to show that the birds lay again. The third ground for the belief that they lay again is the number of immature eggs found in a mature bird, but this seems to be a feature of all mature birds no matter of what species. To test the question as to whether the birds, if robbed, lay a second time in one season, sixteen burrows were selected and marked. In 1920 the eggs were taken from six burrows as they were laid, between November 23rd and December 3rd, and the birds were marked with rings on their legs. In only one burrow was a second egg found, and in this instance two strange birds were with the egg.

In 1921 a similar procedure was followed and the burrows were kept under observation until January 16th, 1922. In one hole two strange birds and an egg were found. In another a strange bird and an egg were found on December 15th. A marked bird, No. 82, and a new egg were found on December 21st, but the hole was deserted eight days later. This bird (No. 82) had been robbed on November 29th, but it is possible that the egg found with it was laid by a strange bird, owing to the fact that the mate, No. 110, was never found subsequently in the hole, although this was examined at frequent intervals, and also owing to the fact that the bird (No. 82) deserted the egg only eight days after it was found with it. In another burrow two birds (Nos. 75 and 119) were robbed of their egg on November 20th, 1921, but were found on December 15th with a new egg, which they continued to incubate alternatively and continuously until January 16th, when observations were relinquished. In this case it is quite possible that the egg was laid by a strange bird and adopted by this pair. It has been proved by experiment that the birds will adopt a strange egg if such is placed in the hole soon after they have been robbed. This is the only instance during four years of observation in which the two original birds were found with a second egg.

In 1922 the rookeries were not visited until late in the laying season. In burrow No. 1, which was robbed on December 1st, 1922, sixteen days later a strange bird and an egg were found. A further inspection of the burrows on December 26th showed that there were no fresh eggs. During December of 1922, fifteen other burrows were marked and the eggs taken from under the birds, but the birds were not branded with rings, as in the other cases. The eggs were all removed prior to December 4th, and the nests were not again inspected until December 26th, when no fresh eggs were found.

Summarised the results of the four years' observations are:—In 1920, in one burrow out of twelve a second egg was found; in 1921, three out of twelve; in 1922, two out of sixteen; and in 1923, none out of thirty-one; or a total of six out of seventy-one during the four seasons. In none of the six cases, however, was it conclusively proved that the original pair of birds owned the second egg.

PERIODS OF SITTING BY PARENT BIRDS.

In order to ascertain whether both parent birds sat on the egg, a burrow was selected and marked on December 6th, 1923. It was found that one parent sat until December 11th; the other until the 25th; then the first again until January 7th; the second again until January 19th, when the egg hatched, and the birds left the young one during the day. Of course during the night both birds came back to the burrow and fed the young one. It would thus appear that each bird sits for about a fortnight, when it is relieved by its mate, which takes its turn for a fortnight. In cases where the egg is taken, the birds continued to inhabit the burrow for a few days, both night and day, after which they came back only at night for a short period, and then finally deserted the rookery.

CONCLUSIONS.

As the result of observations and experiments carried out during the past four years, there seems to be fairly conclusive evidence that the Mutton-bird, in contradistinction to most other birds, lays only one egg in the season. This may be accounted for by the fact that the egg is such a large one, and quite disproportionate to the size of the bird. There also seems to be fairly conclusive evidence that the birds return to the same rookeries and holes each year for laying purposes. These are facts of great interest and importance in the conservation of these birds, and will have an important bearing on the regulations framed under the Game Acts for their conservation and protection.

A Spring Excursion into South-western Queensland

By Dr. W. M. MacGILLIVRAY, C.F.A.O.U., Broken Hill,
Sometime President, R.A.O.U.

Part II.

We resumed our journey towards Adavale, the thick scrub giving place to more open forest, and then to open scrub, with much herbage and many wild flowers. We stopped for lunch in quite a garden, and added many plants to our portfolios. Amongst these were a new *Prostanthera,* and a very beautiful *Trichinum.* Birds were mostly Yellow-throated Miners, which species had replaced the Noisy Miner since we crossed the Paroo-Bulloo watershed. Singing Honeyeaters were again in evidence, and Spiny-cheeked Honeyeaters were here as elsewhere; they had been with us all through.

Nearing Adavale the country became more open, with larger timber, mostly Yapunyah, Bimble-box and *E. Thozetiana,* which finds its western limit here. We crossed the Blackwater Creek, which was running from bore-water, before entering Adavale—a small hamlet on a bare open space. Leaving the town we had seven miles to go over a bare open common before crossing the Bulloo main channel. The road to Windorah went on, but our way was to the south, parallel with the river. During a compulsory halt a pair of Chestnut-tailed Thornbills were seen feeding their nestlings in a dead Mulga. The entrance hole in the tree we were curious enough to measure, and found its horizontal diameter ⅝ in., and its vertical ⅞ in., yet the parent birds went in and out without difficulty. Up to this time we had not seen a Budgerygah, though a few small lots of Cockatoo-Parrots had passed us at intervals since the commencement of our trip. We camped for the night at a good waterhole in the middle of the Bulloo channel.

Next day we proceeded along the road, which crossed and recrossed the river all the way from Adavale to Thargomindah. After several miles we decided to walk along the channel, while the car went on to the next crossing-place to await our arrival for lunch. The walk was a long one, and we did not have lunch till three in the afternoon. Very little bird life enlivened our walk—two pairs of White Cockatoos and one Galah, and we found only four nests containing eggs—one of the Wood Swallow (*Artamus superciliosus*) in a cleft on a tree trunk; one of the Peaceful Dove on a bracket of bark on a dead Eucalypt; one of Spiny-cheeked Honeyeater pendent in an *Acacia stenophylla,* and one of Jacky Winter (*Microeca fascinans*) on a dead horizontal fork of a *Eucalyptus microtheca.*

There was much coarse Kangaroo Grass in the channel, which sheltered Kangaroos and Wallabies. There were very few Ducks on the waterholes, but from several we flushed Pelicans and Spoonbills.

On the road again we crossed the Bulloo near Comongin Station, and made our way along a stony hillside, which was gay with flowers. The Wedgebill, which we had not seen since reaching the Paroo, was now heard singing in the scrub. We called a halt soon after, to adjust a spring that had slipped, and during the wait beside a well-grassed stretch of the channel Wedgebills were seen, and a pair of Red-backed Parrots; this must be their far westerly limit, as we saw no more, and they did not occur beyond the Grey Range. Comongin Station was passed late in the afternoon, quite a town of buildings near a very fine sheet of water on which were numbers of waterfowl. Our road ran on round the end of the lake, and we went on till nearly dusk, when we pulled in to the channel to camp. The trees were Yapunyah and Coolibah, with Queamurra and "Lignum." The Grey-crowned and White-browed Babblers were noted in the trees, the latter for the first time since leaving Hungerford. Yellow-throated Miners, the ubiquitous Greenie, White-browed and Black-faced Wood-Swallows were to be seen.

Early next morning we heard Brolgas (Native Companions) calling near our camp, and we saw four Black Cockatoos (*Calyptorhynchus banksi*) in a Leopard tree out from the river. We started again and soon crossed the railway line and ran into Quilpie, the western terminus of the Brisbane-Charleville railway. Twenty-seven Black Cockatoos flew over the town whilst we were in it. We stayed only a short period, to make a few purchases, and went on again, but broke a spring when two miles out. The loading was taken off the car and the empty car run back to the local smithy for repair. Dr. Chenery and I started out to explore our surroundings, mostly Gidgee scrub. In one of these trees near our camp a Yellow-throated Miner had her nest containing eggs, and not far from it a Crested Pigeon was sitting closely on her nest. We followed a watercourse and soon came across a party of Apostle-birds fussing about a nest high up on a nearly vertical limb of a Yapunyah; they were taking it in turn to sit in the nest, and were doing much chattering. About a hundred yards down the creek we found another lot with a nest low down in a Gidgee. This was being sat upon in turn by several members of the party. This nest was found to contain six eggs, four of which were of a different type from the other two, and were probably laid by another bird. The nest was only 15 feet from the ground, was well built up of mud, and lined with grass. The surrounding pasturage was very dry, and birds were few in numbers. We made another start late in the afternoon, and soon came to better country, where we stopped to photograph a fine flowering specimen of *Eremophila polyclada.* At twenty-eight miles from Quilpie we recrossed the Bulloo, and camped. Peaceful Doves, Crested Pigeons, Harmonious Thrushes, Greenies, White-browed Wood-Swallows, Kookaburras and Red-backed Kingfishers were about this spot. We had seen no Blue-bonnets since Cunnamulla, no Bare-eyed Cockatoos since leaving Bootra, and very few Galahs. A few pairs of White Cockatoos were along the Bulloo, but no Ringnecks. Hawks, other than the Whistling Eagle, were scarce. We resumed our journey, and soon stopped to search a patch of Gidgee. A small lot of about 20 Straw-necked Ibises were working a small open space for caterpillars, and a pair of fine Wedgetail Eagles were feasting on a dead bullock. These birds are useful scavengers, getting rid of many carcases which otherwise would be nurseries for the blowflies, which are such a menace to the sheep-breeding industry. The scrub contained very few birds: the Chestnut-backed Thornbill, Red-capped Robin, and White-browed Babbler. The Pipit became more frequent as we left the denser scrub behind. The scrub opened out farther back, and contained other trees, such as Bimble-box, Gidgee of taller growth, and Mulga. Another party of Apostle-birds was caring for a nest in a Gidgee, which was found to contain three eggs only.

On the road again we crossed an open flat and disturbed numbers of Whistling Eagles from the ground, where they had been searching for caterpillars. We spent an hour at a bore stream to have lunch, which was rendered very uncomfortable by the presence of sandflies, and we were pleased to get away from their troublesome stings. The road from here on to Thargomindah was very rough, owing to mobs of cattle having passed over it after heavy rain, and their tracks having dried hard. We pulled into Thargomindah at about 6 o'clock. This has been a large and prosperous town in the past, when the stations surrounding it were well stocked with sheep, and employed many hands. Now most of them carry small numbers of cattle only. A fine artesian bore supplies the town with water which is laid on, and also supplies the power to light the town with electricity. The bore water comes out at the rate of 670,000 gallons daily, and has a temperature of 160 deg. F. It has been running for about 30 years, and shows little diminution. From Thargomindah we took the westerly road, intending to cross the Grey Range and to strike the Wilson River at Nockatunga Station. We left the town on the 2nd September, intending to make the Bullawarra Swamp our first halting-place, at about fourteen miles out. The swamp is locally noted as a breeding-place for waterfowl, and has a good deal of Lignum and Coolibah in it. It partly surrounds the lake, being separated from it by a sandbank. The

Nesting-hole of White-browed Tree Creeper (*Climacteris affinis*).

Site of Nest of Winking Owl.

Photos. by Dr. W. MacGillivray, C.F.A.O.U.

lake is large, about 5 miles in diameter, circular in shape, bordered with Red-gum, Coolibah and Swamp Acacia. There were very few birds on the lake. In the swamp were many Ducks, Water-hens, Red-kneed Dotterels, and a few Spoonbills. A pair of Spurwing Plover were vociferating loudly overhead as I crossed through the swamp to the lake. The gum-trees along the edge of the lake, most of them standing in water, contained many Galahs' nests and one pair only of the Bare-eyed Cockatoo, the first that we had seen since leaving Bootra Station. Mr. Riddell joined me, and we flushed a Winking Owl from her nesting hollow in a live Red-gum. The nest—a large open hollow eight feet from the surface of the water—contained three downy young about a week old. A Little Falcon was seen flying from the lake to the bordering trees. On the following day Dr. Chenery and I made a further exploration of the lake and swamp. The water was intensely cold at first, but improved as the day wore on. We visited the Winking Owl's nest. The male flushed from an Acacia near the nesting tree, and the female from the hollow itself. They were immediately attacked by a pair of Little Falcons, and did not seem to relish it, as they repeatedly uttered calls of distress as the little hawks dived down upon them. The Falcons probably had their home in one of the numerous old nests in the bordering trees. We went through many miles of the swamp; noted many young Water-hens and a few young Teal. Red-kneed Dotterels were also nesting. Teal, Grey, Pink-eared, Shoveller, White-eyed and Freckled Ducks were fairly common. Many old nests of Ducks and Water-hens were found.

Strings of Straw-necked Ibis kept flying out from the back of the swamp to their feeding grounds. The Reed-Warbler and Little Grass-bird were seen and heard in the swamp, and several Brolgas were in and about the shallower waters.

After we left this swamp, the country opened out gradually into plains intersected by Gidgee creeks. *Eremophila Dalyana* in flower bordered the road for a space, and we ran parallel with a creek along whose banks Coolibah and Gidgee were the principal trees, with bushes of *Cassia* and *Eremophila* well in flower, and the spiky *Acacia farnesiana* as yet in bud. Our radiator leaked dry, and we pulled into a creek to get water, disturbing four or five Bustards that were feeding amongst some Kochia bushes. Nearing the Grey Range we found on the slopes much Gidgee, which developed, as we came to the top of the range, into a dense low scrub with much herbage on the stony ground. As we left the western slopes the Gibber-bird (*Ashbyia lovensis*) was disturbed from the roadside, and the Pipit became common again. We pulled in for the night at Stony Gidgee Creek, where there was good water. The creek was bordered with Coolibah and Gidgee, with *Acacia salicina* and *Eremophila bignoniæflora*. Dr. Chenery and I went up the creek for a short distance before the billy boiled, and noted a Chough on her nest, and an Allied Wren (*Malurus assimilis*) family, White-browed Babblers, Spiny-cheeked Honeyeaters, Greenies, Singing Honeyeaters and Galahs. We went up the creek again on the following morning. A Greenie had her neat little nest in a bunch of Mistletoe (*Loranthus pendulus*) growing on a Gidgee. The nest contained a pair of fledglings whose skin was yellowish, gape yellow, legs slaty, with grey down on the head, back, and humeral and femoral feather tracts (*pterylae*). More Allied Wrens were seen, a nest of the Sparrowhawk, empty on the previous evening, was now found to contain one egg. This open nest was only twenty feet up in a Gidgee, and was built of fine dry twigs, lined with green leaves. The diameter over all was one foot; egg cavity, 6 inches; external depth, 10 inches; internal, 4 inches. The female flashed past later, when we were taking a photograph. Dr. Chenery by patient watching found a group of nests within 30 yards of one another. The first was that of the White-browed Tree-creeper (*Climacteris affinis*) in a small hole three feet from the ground, in a dead Gidgee. The nest contained young birds. Not far away was a nest of the Red-capped Robin, a beautifully hidden structure on a horizontal fork of Gidgee at a height of four feet. The hen bird allowed us to examine and photograph her on the nest without evincing the slightest fear. She was sitting on one egg. A third nest was the beautiful purse-like structure of the Mistletoe-bird suspended 12 feet up in the top branchlets of a young Gidgee. It contained two eggs and looked more like a mass of tangled cobwebs than a bird's nest. The next nest was that of the Yellow-tailed Thornbill in a pendent Gidgee branchlet. It had the usual open nest at the top, one compartment that contained an egg of the Narrow-billed Bronze Cuckoo, and another newly-completed room constructed by the birds to outwit the cuckoo after the latter had laid in their first compartment.

Nearer our camp a Crested Pigeon was sitting on her nest in a bunch of Mistletoe parasitic on *Acacia salicina*. A White-browed Wood-Swallow's nest with callow young was in a cleft of a stumpy Coolibah and within a few yards of it was a Willie Wagtail's neat nest, low down in a small bushy Gidgee about two feet from the ground. The bird was sitting on four fresh eggs. Two nests of the Magpie-Lark (*Grallina*) were found low down over the water on horizontal limbs of Coolibah. One contained eggs and the other was receiving the finishing touches. Four Apostle-birds were busy building a nest in a Gidgee; some bringing mud gathered from the water's edge, others fibre taken from the ground or torn from the bark of some dead limb. They seemed to work in perfect agreement, one waiting with material until another had completed her share before attempting to add her contribution. Out here we could not tell whether males or females were building, as the sexes were alike; but in my aviary the female of a pair did all the work, the male superintending, and giving advice or approval.

White-winged Choughs (*Corcorax*) were feeding small young birds. One old bird came to the nest with food when the sitting bird would fly away and the young would be fed. The excreta of the young was cleaned up by being swallowed, as is the case with the Australian Magpie (*Gymnorhino*), after which the bird sat on the nest until the other returned with more food.

Behind this creek was a stony, scrub-covered ridge through which a few gullies ran down to the creek. Here a pair of Rufous-breasted Whistlers were building, as also were pairs of Hooded and Red-capped Robins. Chestnut-tailed Thornbills, Bronzewings, Butcher-birds, and Singing and Spiny-cheeked Honeyeaters were identified. We left this interesting spot in the afternoon, following the road over open plains intersected by creeks, with scrub to our right and left at a distance, and gradually giving place to stony ground, on which we again noted the Gibber-bird (*Ashbyia lovensis*). These plains were dry for a time till we came to some bright terra-cotta-coloured sandhills to our left. These were dotted with many flowering plants, and there was a good deal of herbage on the surrounding flats. Most conspicuous and sprawling on the side of the sandhills was *Acacia ligulata,* covered as it was in every instance with its brilliant inflorescence. On the top, groups of that shapely shade-tree the Whitewood (*Atalaya hemiglouco*) grew in association. Fine yellow-flowered bushes of *Crotolorio dissitiflora* were dotted all over the sand, with a few grown specimens of *Crotolaria Cunninghami,* with its curious green, bird-like flower and many seedling plants.

Tangled bushes covered with flowers of the fine yellow composite *Colotis erinacea* were fairly frequent. The Purple Pea (*Swainsono parvifloro*) was growing finely and flowering freely round the foot of the sandhill. The road for the rest of the way was very rough over the flooded ground of the Wilson River, which here ran south parallel to the Grey Range. We crossed it at a stony crossing without so much as wetting our tyres. We went south along its right bank through stunted Red-gum and Coolibah with occasional trees of Bimble-box, *Acocia stenophylla* and *Eremophila bignoniæflora* near the channel. We soon came to Nockatunga waterhole—a fine permanent hole—and ran on to the gravelly plain which overlooked it, and on which the station buildings stood. As we arrived a mixed mob of cows and calves was being yarded by the musterers for branding. Mr. and Mrs. Hughes were away in Thargomindah, but we were made welcome, and remained for two days. The station has been well placed on this gravelly ridge from which one can look down upon a long reach of the Watson bordered with its gums and smaller trees, and beyond these a sea of scrub stretches away to the Grey Range in the distance.

After breakfast on the following morning we went up to the stockyards for a time to watch drafting operations, which were carried out by the station hands, more than half of whom were aborigines. In the afternoon we examined a wide *Salicornia* flat below the station, and between it and the river. A few families of White-winged Wrens (*Malurus cyanotus*) and several Black Honeyeaters were seen here, and a nest of each species found. That of the Honeyeater was placed in the top of a *Salicornia* bush about two feet from the ground. It contained two young birds newly hatched. Their skin was black, eyes not open, bill, feet and legs blackish, gape dull yellow. A small tract of fluffy greyish down was on either side of the head and across the nape. Down was also on two tracts down the back, and on the femoral and humeral regions, and forming two lateral pectoro-abdominal tracts. The nest was open and cup-shaped. It was composed of fine dry twigs and a little cobweb, and was lined scantily with dry grass and a piece of hessian purloined from some rotting bag. The external diameter was 2½ in., and internal 1½ in.; internal depth 1 in., external 2½ in. The Wren's nest in a similar bush, one foot from the ground, faced north, and had a hood over the lateral entrance. From top to bottom it measured 6 in., and 4 in. from front to back; entrance was 1½ in. x 1 in. It was composed of fine dry grass and spiders' egg-sacs.

Very few water birds were on the waterhole. We followed it down till blocked by a Lignum swamp. A Wedgebill was heard whistling, and its nest was found about 10 feet up in a bunch of Mistletoe growing on *Acacia stenophylla.* The nest contained two young birds.

We made a late start on the 6th September and followed the Wilson down on the same bank as far as Nocundra—a small township of about half-a-dozen houses. We crossed the river below the township, followed the road out for about two miles over country subject to inundation, picked up a cart-track in an endeavour to avoid a long stretch of road made very rough by herds of cattle having passed over it when it was wet. We followed on over stony ground, on which Mulga, Gidgee and Dead-finish were the principal scrub trees, with an occasional bloodwood and an under-brush of *Cassia phyllodinea, Cassia Sturti,* and *C. desolata.* An Australian Dotterel flushed from the road, and we searched long for the well-concealed eggs, before we found them on the wheel track; a depression 1 inch in depth had been made by the bird to contain the three eggs. Bird, eggs and soil were of much the same sandy colour, and the scattered stones and gravel helped in the concealment. We retraced our way, picked up the main road, and crossed a creek-bed which was a garden of flowering herbage. Here the car went wrong, necessitating a long delay. We made camp on a waterhole half a mile away. Only a few Coolibahs and Acacias bordered the waterhole, and firewood was scarce. A pair of Allied Wrens had their nest and young in a low bush of *Eremophila polyclada.* Magpies had large young in a tree near our camp, and numbers of Brolgas were on the plain. In the evening flocks of Straw-necked Ibises flew from all directions to a common roosting-place, after regaling themselves all day on the hordes of caterpillars that were devastating the herbage on the plains. A fine cold night was punctuated by the musical trumpeting of the Brolgas, and, in the morning, pairs and small parties of these fine birds were seen feeding quite near our camp.

Clouds of Ibises appeared as hazy patches on the north-western horizon just after daylight, and soon materialised into a succession of large flocks which broke off in all directions to feed on the plains. Many passed directly over our heads in compact masses, strung out into long lines or in V-shaped order with the limbs of the V changing from time to time with a different leader at the apex. This continued for nearly an hour and a half before all had dispersed. It would be a difficult matter to make an estimate of their vast numbers, and still more difficult to estimate the number of caterpillars which would be required to fill all their crops or to judge the saving of vegetation effected by the birds.

We continued our journey, but had many car troubles. Crossing a grassy plain a Bushlark (*Mirafra*) was heard singing in the air, and another noted with fledged young.

A sandhill near our first halt was sparingly covered with scrub trees. *Acacia ligulata* and *Acacia tetragonophylla* were flowering, while *A. Oswaldi* was in bud. Mulga, Whitewood, Needlewood, and Cork Tree (*Hakea intermedia*) were the principal trees. Large shrubs of *Eremophila Duttoni* were in fine leaf and flowering; and *E. Latrobei* bore brighter flowers and narrower greyish green leaves. At the foot of the sandhill another *Eremophila* grew, which I had seen last at Cordillo Downs. The greater part of the sandhill was covered with *Trichinum alopecuroideum,* both the white and purple varieties, two Swainsonas, and a small soft procumbent plant (*Gnephosis eriocarpa*). On account of these qualities the last-named was much used by birds for nest-construction.

More Gibber-birds and Dotterels were disturbed along the roadside, and a pair of Black-breasted Plovers protested at our intrusion, so that it was evident that they had young near-by. An area of swampy country away to our left was yellow with flowering composites, mostly *Senecio lautus.* Numbers of cattle were feeding all over it, and a wonderful mirage separated them from the Grey Range in the distance. A brief examination of this swampy ground led to the identification of the White-winged Wren and Orange Chat. Our way led us along the stony edge of low sandhills, then across stony stretches between creeks running down from the Grey Range to the Wilson River. Some of these stretches were covered with the lavender variation of *Blennodia canescens* and *Swainsona tephrotrycha.* A few Gibber-birds, several Dotterels and Black-breasted Plover were all paired and probably breeding. As we pulled into Paddy Paddy waterhole the whole of the creek banks and for 50 yards out on either side seemed to be occupied by thousands of Straw-necked Ibis. The air was full of them as they took alarm, and rose to leave. We made a rush to get our cameras, but the birds were gone before we were ready. We crossed the creek and made our way over stony plains intersected by small creeks that ran into the Wilson as it bends away to the west and north to find its way into the Cooper. We passed for the first time on our trip fields of Gilgai Peas (*Swainsona procumbens*) making vivid patches of glowing purple with the rays of the late afternoon sun shining through their petals. We dipped a bucket of water at a dam and carried it with us to a camping place on the edge of the nearest sandhill.

Before breakfast on the following morning I wandered up the hill, the sand of which, smoothed by the previous day's winds, now bore numerous imprints made by prowlers of the night and dawnlight. It interested me to interpret many of them and to trace some, after devious wanderings, to their ultimate abodes. These tracks may be those of mammals, such as rabbits, foxes or bandicoots, reptiles—the goanna being the principal—scorpions, beetles and the larval forms of other insects. An early start was made and we went on over gravelly plains, on which were a few pairs of Gibber-birds. We came to a corner of fences, and had to find our way through three gates to pick up the road again. A fine Black Falcon was patrolling overhead as we entered a stony plain clothed in salsolaceous herbage and Mitchell Grass. We heard a Bushlark (*Mirafra*) singing high overhead, and soon flushed a pair of Gibber-birds. A short search revealed an openly placed nest containing one egg. The nest was constructed of dried herbage, and was lined with fine grasses and a little horsehair. Its diameter measured over all 5 in., cavity 2 in., and internal depth 2 in. A Pratincole was next seen, followed by a young one of about a week old. We disturbed several more Gibber-birds in pairs or in groups of three or four. Another nest was found from which the birds fluttered away along the ground to lead us from it. This nest contained three fresh eggs. A Pratincole next rose from a bare stony patch near the road, and a prolonged search led to our finding a pair of admirably-concealed eggs, a dark clutch, very much like the ironstone of their surroundings. A ring of small pebbles served as a nest. Several more of these birds were seen before we came to Bransby, crossed the creek, and followed the road over another gravelly plain well covered with herbage. Here we passed two men with some cattle returning to Yanco from the Nockatunga muster.

We passed through the ruins of Big Dingera, crossed over the next creek to a nice waterhole along whose banks were the remains of aboriginal camps. The trees were enlivened by the notes of the Spiny-cheeked Honeyeaters, a nest and two fresh eggs being noted in a pendent bough of a *Eucalyptus microtheca*. A crowd of Greenies were busy mobbing a Sparrowhawk. Lunch over, we made a start along the road over open country rather bare of vegetation. Later we passed into scrub where the ground vegetation rapidly improved in quantity and quality, some areas being white with *Helipterum floribundum,* or yellow with *H. polygalifolium,* in thicker scrub. There was a mixture of *Ptilotus alopecuroides, Podolepus rutidochlamys, Senecio Gregorii,* in patches of golden yellow or silvery white, with its downy seeds. Lavender daisies (*Brachycome ciliaris*) (?) as large as a florin, covered much of the ground. *Acacia cana* was just bursting into bloom, and even the rugged and spiky Dead-finish had its asperities softened by yellow balls of bloom. *Eremophila Duttoni* had its fine bunches of rich green foliage dotted over with crimson flowers.

We stopped at Little Dingera for afternoon tea and went on again through the same flowering herbage carpeting the scrub, till we reached Yanco Station, where we found a party of drovers. We camped on a billabong about three miles beyond Yanco, and out from the Warri, and near to where Mr. W. McLennan and I had camped seven years before. Birds were numerous: Chestnut-crowned Babblers (*Pomatostomus ruficeps*), many Honeyeaters, including the Singing, Spiny-cheeked, Black, and the White-plumed, the Noisy Miner, and three Wood Swallows (*Artamus superciliosus, A. personatus* and *A. melanops*), two Tree-creepers (*Climacteris picumna* and *C. affinis*), two Ground Doves (*Geopelia placida* and *G. cuneata*), and the Crested Pigeon (*Ocyphaps lophotes*). Budgerygahs were then arriving in small flocks, and Cockatoo-Parrots in larger lots. Blue-bonnets were common. Mulga and Gidgee and *Acacia cana* were looking well, many trees of the latter were coming into flower. The Wild Parsnip was tall and flowering everywhere, *Helipterum polygalifolium, Podolepis rutidochlamys,* and many others. A lavender daisy two inches in diameter covered the ground in many places. Dr. Chenery found a nest of the Black-faced Wood-Swallow (*Artamus melanops*), containing four eggs, in a Dead-finish. A Chestnut-eared Finch had her nest and eggs in an *Acacia cana* four feet from the ground, and another of the same species had built hers in a hollow Mulga stump. A Singing Honeyeater's nest, with two eggs, was in a common site—a bunch of Mistletoe (*Loranthus quandang*) on a Mulga. A pair of Black Honeyeaters (*Myzomela nigra*) were busy putting the finishing touches to their tiny nest on a horizontal fork of a dead *Acacia cana.* A Crested Bellbird's nest, from which the bird flushed, was placed two feet from the ground in some dead branches at the foot of a Mulga. A male *Myzomela* was keeping to one locality, and making curious little flights up into the air, descending with outspread, forward-sloping wings, and darting at intervals into a flowering *Eremophila Duttoni* to sip its nectar. Beautifully camouflaged on a dead grey horizontal fork of *A. cana,* the little grey female sat motionless on an equally grey nest. Her beak was pointing up and to one side like a small stick, and the tail, compressed to keep up the deception, pointed in the opposite direction. The little bird did not make the slightest movement, though we all examined the nest and took photographs within 18 inches of her. It was not till I attempted to stroke her, and my finger was within three inches of her, that she left her nest. The nest was 2 in. in diameter externally, 1½in. internally, and 1 in. in depth. It was constructed of fine dead stalks of herbage bound together with cobweb and lined with fine grasses and rootlets. It contained two fresh eggs.

We pulled up for lunch at Naryelco Station, and went on to Olive Downs, passing the border of Queensland at the Warri Gate. After leaving Olive Downs we had the misfortune to break a spring. We logged it up with a piece of Mulga and crossed the Grey Range in the dark, arriving at Tibbooburra at about 9 p.m.

We were told by the local Sergeant of Police that he had seen a wombat in the vicinity, so we made an excursion to the locality to verify his observation. The burrow that the animal was supposed to occupy was, in our opinion, far too small for so large an animal. Dr. Chenery found a nest of the Masked Wood-Swallow (*Artamus personatus*) low down in a Dead-finish. It contained a clutch of four eggs. Our way back to the town was through a Mulga paddock, with the ground clothed in Wild Parsnip and other flowering herbage. Fairy Martins were nesting amongst the big granite boulders near the town. During this trip we had noted their nests under verandahs, sheds, or leaning trees, in crevices of steep river banks, and here, amongst the boulders. We left the town soon after lunch, flushed a few Gibber-birds on the stony ground before running through the Gidgee Forest that ushered the road into Milparinka. We crossed the Evelyn Creek below the town, passed through creek flats luxuriant with herbage and many wild flowers till we came to the sandy country and the Cobham Sandhills, where the big white and yellow composites dominated the landscape. Short-billed Crows in numbers were nesting in the Mulgas on these hills. Cobham Lake, very mirror-like in the evening light, had many Black Swans, with broods of young, on it. We pushed on till the crest of Koonenberry loomed above the horizon to the east, when we pulled off the road to camp in a clump of Mulga. This camp proved to be an unpleasant one, owing to numbers of evil-smelling green beetles invading it and running over ourselves and our bedding. We were up early, and found a pair of Wedgebills building in a near-by Mulga; Crested Bell-birds feeding young in a nest in a Dead-finish, and many Masked and White-browed Wood-Swallows starting nests. More Gibber-birds were flushed before we reached Iduna Park, and after we left on our way to Pack-saddle, where the Mulga scrub was looking well, and the ground was well covered with herbage. White-browed and Masked Wood-Swallows were much in evidence here, as food was plentiful. We ran on to Bancannia

Lake, where we saw many Swans, Avocets in the shallows, Red-capped Dotterels along the edge, and a few Spurwing Plovers.

On the sandy country the daisies in bud early on our trip were now well grown, and flowering freely. The gravelly stretch between Sandy Creek and Fowler's Gap was covered with *Helipterum corymbiflorum* and *Craspedia crysantha.* Several pairs of Gibber-birds were flushed, and a few Australian Dotterels. We lunched at the hotel, and, crossing the creek, disturbed a pair of Spotted Harriers from their nest by the roadside. After we left Euriowie the hills passed through were in places one sheet of golden yellow from *Helipterum polygalifolium*; at others a duller yellow where the *Craspedia* buttons were dominant. The rest of the way was without interest to ornithologists, but botanically had quite changed since we had passed over it a month before.

FINIS.

The Nest of the Grey Fantail.—I brought home a deserted nest of a Grey Fantail (*Rhipidura flabellifera*), and as I was curious to know exactly what quantities of different materials were used in its construction, I decided to count them. Verily it was a long and tedious undertaking, but eventually it was accomplished. A very careful estimate gave 10,000 as the number of hairs or hair-like material used, while 2164 chips of rotten wood, 631 pieces of dry grass and stems, 257 pieces of fine roots, 167 pieces of moss, 2 leaves (probably accidental), and about 100 pieces of cobwebs were used in the construction of the nest. Obviously, these figures are approximately correct, as it is practically impossible to arrive at the actual number, which would probably be in excess of those given. The nest in question was described in *The Emu*, Vol. XXIII., page 22. — ROBT. H. D. STIDOLPH, R.A.O.U., Masterton, N.Z.

* * *

Hovering by Hawks of the Genus Elanus.—Mr. W. B. Alexander, in a note (*vide Emu*, Vol. XXIII., p. 146), says that he was not previously aware that birds of this genus were in the habit of hovering. Mr. Sid. W. Jackson, in his article, on The Trip to the Diamantina River after the Letter-Winged Kite (*Elanus scriptus*), mentions the fact of this bird hovering over the nest when disturbed. As a matter of fact, he makes a special note with regard to this peculiar mode of flight. I would also like to record having seen a Grey Goshawk (*Astur novæ-hollandiæ*) hovering for a time over some young Rails, which had taken shelter in a clump of rushes on a bare marsh. The Hawk hovered for fully a minute at one time, till it found that the little Rails would not leave cover.—J. F. H. GOGERLEY, R.A.O.U., Ellerslie, Wallis Lake, N.S.W.

The Avifauna Around Tumbarumba, N.S.W.

By E. C. CHISHOLM, M.B., Ch.M., R.A.O.U., Comboyne, New South Wales.

Tumbarumba is situated in the County of Selwyn, N.S.W., in mountainous country, at an elevation of 2200 feet above sea-level, about 70 miles nearly due north of Mount Kosciusko, about 120 miles from the nearest point on the coast, which would be almost due east in the neighbourhood of Moruya, and about 25 miles north of the Victorian border and the Upper Murray River. Annual rainfall about 40 inches; maximum temperature, 97deg. Fah.; cold in winter, and often under snow. It is on the south-western slope of the tableland, gradually opening out on the west in undulating country, till Wagga, on the north-west, 70 miles away, and the Riverina are reached. It is practically on the dividing line between thickly timbered mountain country and the more open, undulating, sparsely timbered country between it and the western plains.

I spent five days here during March, 1920, but saw in this time quite an interesting variety of birds, which I consider worth recording. The country here was well watered, which accounted for the large bird population. The forest flora consisted almost entirely of eucalypts, among which were the Blue Gum (*Eucalyptus globulus*), called here *"Eurabbie,"* and growing to splendid proportions; the Apple Box (*E. Stuartiana*), Apple Green Gum (*E. stellulata*), the Snow Gum (*E. coriacea*), Red Stringybark (*E. macrorhyncha*), a Peppermint (*E. numerosa*), and others.

My observations were made from the mountains at the back of the town. The country here in many ways reminded me of the Blue Mountains, both in regard to conformation and fauna, Though the species of Eucalypts differed considerably, there was a general likeness to the flora of the Blue Mountains too.

Lobibyx novæ-hollandiæ. Spur-winged Plover.—Saw a few on the edge of a stream in cleared country.

Ægintha temporalis. Red-browed Finch (Red-head).—Seen in fair numbers about Blackberry scrub, and often in the company of the Silvereye. The only Finch seen here.

Notophoyx novæ-hollandiæ. White-faced Heron.—Seen only once or twice close to a creek.

Ieracidea berigora. Brown Hawk.—Fairly numerous, especially in the more open country.

Cerchneis cenchroides. Nankeen Kestrel.— Seen occasionally. Feeds largely on lizards, and probably kills many small snakes. I have seen it attack small birds at times; but, in spite of this, it is a very useful bird.

Callocephalon fimbriatum. Gang-gang Cockatoo.—Saw a small number flying from tree to tree.

Platycercus elegans. Crimson Parrot (Lowry).—Fairly plentiful, feeding on seeds of the Scotch Thistle.

Platycercus eximius. Rosella.—Only one of these seen, as it prefers the more open country to the west.

Dacelo gigas. Laughing Kookaburra (Laughing Jackass).—Several seen, and distributed everywhere. One of the few birds of which the Goanna (*Varanus varius*) is afraid. I have seen one chasing a Goanna, swooping down at intervals, and scolding loudly, and the lizard going as fast as its legs would carry it. I have several times seen this bird dive into water.

Halcyon sanctus. Sacred Kingfisher.—Only one seen. This seems to prefer forest country, where it feeds extensively on the larger Cockchafer Beetles, particularly of the genus *Anoplognathus*, which it picks off the gum leaves without alighting. It feeds mostly on the ground on various small lizards, worms, etc. When near water, frequently to be seen diving.

Hirundapus caudacuta. Spinetail Swift.—A flight of these seen passing over in great numbers. The distances these birds fly in a day must be enormous.

Hirundo neoxena. Welcome Swallow.—Seen about dwellings. The amount of flies and other dipterous insects that this bird consumes must be considerable. I have found it feeding its young at times on a small black cicada.

Rhipidura flabellifera. Grey Fantail.—Much in evidence, and always in the company of other birds. A migrant. Notable for its pretty cup-shaped neat nest, with a long tail of bark projecting from the bottom. The whole outside of the nest is covered with spiders' web, giving it a very finished appearance.

Rhipidura leucophrys. Black and White Fantail (Willie Wagtail). —Seen occasionally. It adapts itself to any kind of country, and is found everywhere all through the State. A favourite situation for the nest is overhanging water. Another situation frequently chosen is right under and close up to a Peewit's nest, the latter acting as a protection from the weather.

Micrœca fascinans. Jacky Winter.—Not many seen, as it prefers the more open forest land. It is very graceful in its actions, and very quick to detect the slightest movement of an insect on the ground. It is one of the few birds that hover, remaining stationary in the air for many seconds, while locating its food. It possesses a very pretty little song.

Petroica multicolor. Scarlet Robin.—A pair seen several times, frequently in the company of the Buff-tailed Thornbill (*Geobasileus reguloides*), the Grey Fantail (*Rhipidura flabellifera*), and the White-throated Tree-creeper (*Climacteris leucophæa*). The three species named are constantly in association with it.

Petroica goodenovii. Red-capped Robin,—Saw one specimen, also in the company of other small birds.

Eopsaltria australis. Yellow Robin.—Fairly common, and seen mostly in the denser growth about gullies. Very fearless, and engaging in its habits.

Pachycephala pectoralis. Golden-breasted Whistler.—Seen feeding high up in the Eucalypts. A fine whistler; the notes are hardly continuous enough to be called a song. This bird is stationary.

Pachycephala rufiventris. Rufous-breasted Whistler.—This bird, unlike the last species, is a migrant, arriving fairly punctually each year. I look upon this as one of our best songsters, the whole bush ringing with its notes in the hot days of early summer. Fairly plentiful here.

Colluricincla harmonica. Grey Thrush.—A pair or two seen, each pair inhabiting its own district, and rarely invading the other's territory. One of our best songsters. This mountain country is really the home of this bird.

Grallina cyanoleuca. Magpie-Lark (Peewit).—In evidence mostly about water, where it obtains most of its food, consisting of many water insects and the pond snail (an intermediate host of the fluke of sheep), which is generally to be obtained about standing water; therefore this species ranks high amongst our beneficial birds.

Graucalus novæ-hollandiæ. Black-faced Cuckoo-shrike (Blue Jay). —Several seen. Feeds amongst the leaves, especially of Eucalypts, taking its food on the wing frequently from the tree-tops without alighting; a migrant.

Malurus cyaneus. Blue Wren.—Occasionally seen, especially in situations where Blackberry or Briar or other dense growth abounds.

Lalage tricolor. White-winged Triller (Caterpillar-eater, Peewit Lark).—Only one seen here, and that a female or male in immature plumage. This is a sprightly little bird, the male having a warbling song, often uttered on the wing. A migrant, and fairly constant in times of arrival, which in western districts is about the middle of November.

Gerygone olivacea. White-throated Warbler (Native Canary). —Saw one bird in the company of flocks of Honeyeaters, which appeared to be all on the move, and only passing through on their autumn migration. The date was March 7th, and just about the time one would expect this bird to be leaving the far south of the State.

Acanthiza pusilla. Brown Thornbill (Tit).—Seen, but not plentiful.

Acanthiza lineata. Striated Thornbill (Green Tit).—Feeding in companies in the trees, this species and the preceding are often seen together.

Geobasileus chrysorrhous. Yellow-tailed Thornbill (Tit).—Not seen in the open forest country, but more near human habitations about the gardens in which it gets food and shelter.

Geobasileus reguloides. Buff-tailed Thornbill (Bark Tit).—A good many seen feeding in companies, and sometimes with the above species. Both feed on the ground. These two species are frequently thought to be one, but their habits and mode of life are quite distinct. The nest of this species is characteristic, built between a piece of outstanding bark and the trunk of a tree, or in a spout or hole in the trunk. Both these are frequently hosts of either or both Bronze Cuckoos.

Sericornis frontalis. White-browed Scrub Wren.—Seen in the low underbrush, and rather shy.

Chthonicola sagittata. Speckled Warbler (Field Wren or Titlark).—I saw this species once feeding on the ground in the company of ground-feeding Thornbills (Tits). Its nest reminds me of that of the Yellow-tailed Thornbill (*Geobasileus chrysorrhous*) in that it has a cup-shaped, open resting place in front for the males, or possibly as a ruse for its enemies, the nest proper being dome-shaped, with side entrance, built under a bush or tussock, and generally well concealed.

Artamus cyanopterus. Dusky Wood-swallow.—An interesting species, and a very valuable bird, in spite of the fact that it is known to feed on bees occasionally. Its staple food in the summer months consists mostly of grasshoppers, and it also takes toll of many other noxious insects, among them moths. It is stationary all the year round in warm localities, but most probably migratory here; not many seen.

Climacteris leucophæa. White-throated Tree-creeper.—Commonly seen, and always in company of other birds. It prefers the thickly wooded to the more open country.

Climacteris picumnus. Brown Tree-creeper.—Unlike the last, this species is found in the more open, partially-cleared ring-barked timber. Not many seen.

Dicæum hirundinaceum. Mistletoe-bird.—Not often seen, but evidently fairly numerous, judging by the amount of Mistletoe about, for it is mostly by its agency that the Mistletoe is spread. A very fine singer, and the notes are uttered loudly at times. The male is one of our most handsome small birds; the female being quite sombrely clad.

Pardalotus ornatus. Red-tipped Pardalote (Diamond Bird).—Seen in flocks. There is a little confusion about the colour of the speculum on the wing. I hold the *opinion for what it is worth that there are only two distinct species—that with the crimson speculum, the bird under discussion, and that with the yellow speculum (*P. striatus*). *P. assimilis* I take to be either a variety, or more likely a hybrid, between the other two. One of my reasons for thinking this is the fact that I have seen one with the crimson speculum and one with the yellow speculum at the same nesting site in the hole of a tree trunk. Moreover, the general form of the birds and their habits are identical, so that it is quite feasible that these two species do inter-breed. One has an analagous case in the Black-backed and White-backed Magpies, which are known to interbreed. These two birds, *P. striatus* and *P. ornatus*, I have known to breed only in holes or spouts of trees.

Pardalotus punctatus. Spotted Pardalote (Diamond-bird).—This species seen in flocks with *P. ornatus*, and on the move in company with the flocks of *Meliphagidae*. I have always known this bird to hollow out tunnels in banks for nesting purposes.

Zosterops lateralis. Grey-backed Silvereye.—A common bird, and seen here about blackberry scrub. An interesting bird from many points of view. A very useful species from the number and variety of small insects it consumes. A great enemy of orchard pests in the shape of many small moths, including the codlin moth in all its stages and aphides. It is a honey-eater, living on native berries and fruit, and taking a toll of orchard soft fruit, which has injured its reputation. In spite of this, the balance is very much in its favour. It flocks during the winter months, when it feeds entirely on insects. It may often be seen in the company of many species of the smaller *Meliphagidae* (Honeyeaters).

Melithreptus lunatus. White-naped Honeyeater (Black Cap).—Found here at this time in large flocks with other honey-eating species; all on the move.

Melithreptus brevirostris. Brown-headed Honeyeater (Cobbler).—This species also in flocks, and on the move.

Acanthorhynchus tenuirostris. Spinebill.—Seen fairly often feeding on Mistletoe (*Loranthus*), high up in the eucalypts.

Meliphaga fusca. Fuscous Honeyeater.—A few of these were seen on the move with the other species.

Meliphaga chrysops. Yellow-faced Honeyeater.—Large numbers of these seen in flocks. The last four mentioned species were all together, constituting quite a number of birds, and all moving in the same direction.

Meliphaga leucotis. White-eared Honeyeater.—A stationary bird, and seen only once or twice singly or a pair together. About stunted scrub.

Meliphaga melanops. Spectacled Honeyeater.—Several of these were seen feeding on the nectar of the flowers of *Eucalyptus Stuartiana* (The Apple Box), and amongst clumps of Mistletoe (*Loranthus*) flowers.

---

*This view is held by the Checklist Committee.—Eds.

Acanthochæra carunculata. Red Wattle-bird (Gill-bird).—Seen now and then, but not in any numbers. They feed largely on the nectar of flowering Eucalypts, travelling from place to place in search of them.

Philemon corniculatus. Noisy Friar-bird (Leather Head).—A few seen feeding about Loranthus.

Anthus australis. Australian Pipit (Ground Lark).—Common on open cleared land.

Corvus coronoides. Australian Raven (Crow).—A few seen. I was a firm believer that we had only one Eastern bird—and had not much faith in the distinction of colour of the base of the neck feathers. I have now examined a Crow with snow-white bases to the feathers of the neck and body, and I think there are probably two species—the Crow and the Raven.

Corcorax melanorhamphus. White-winged Chough (Black Magpie).—Fairly common. Seen in small companies. The females of a company appear to lay their eggs in the one nest, the eggs being sat upon by each in turn.

Strepera versicolor. Grey Bell-Magpie (Grey Magpie).—Saw several of these on the mountains, generally singly or in small groups.

Gymnorhina tibicen. Black-backed Magpie.—This was the common species, and the only one seen here, though at Holbrook, about 40 miles west, and on the Upper Murray, 25 to 30 miles south, I came across the White-backed (G. hypoleuca); though not nearly so common as I found it 25 or 30 years ago.

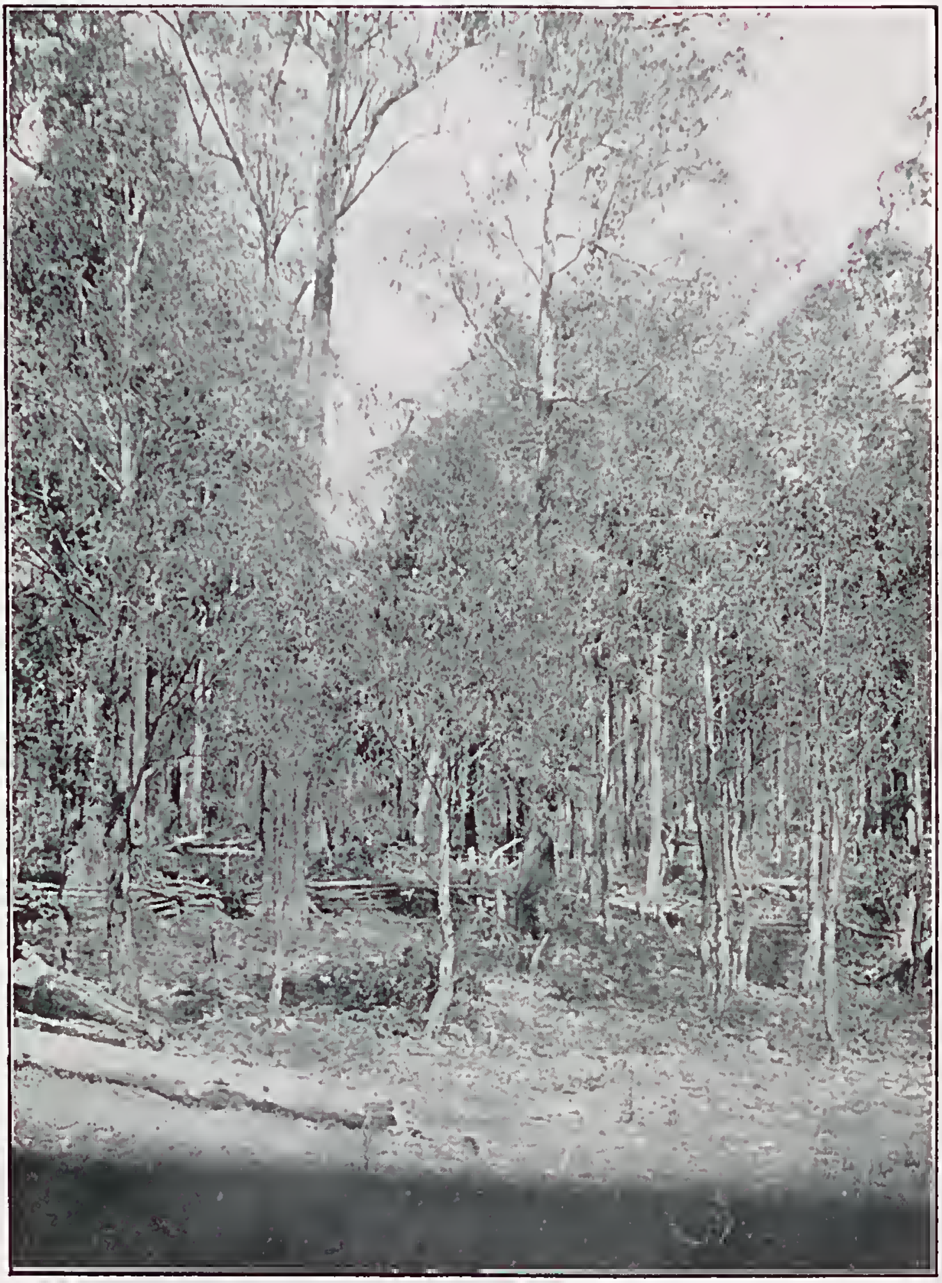
Introduced Birds.

Passer domesticus. House Sparrow.—Common about the town. Its close ally, the Tree Sparrow (*P. montanus*), I did not meet. It is very common a short distance west. I saw several *P. montanus* at Holbrook, about 40 miles away, and it is quite a common bird now in most Riverina towns. I first came across this latter bird at Junee about 1898 or 1899, when I caught several of them. It is now to be seen in large flocks in the Riverina, often associated with *P. domesticus*.

Carduelis carduelis. Goldfinch.—I saw a few of these right amongst the mountains, feeding on the seeds of the Scotch Thistle. It has increased enormously of late years. I met with it all over the Riverina; in fact, in a good many widely scattered areas all over the State. It is a decidedly useful bird on account of its feeding on this thistle, which has got a great hold in certain parts.

Sturnus vulgaris. Starling.—I saw small flocks of these birds, which are increasing at a great rate, and have found their way to almost every part of the State. Great controversies take place from time to time as to whether it is a pest or not. I think myself that, on the whole, it is decidedly beneficial, for its food consists almost entirely of insects, of which grasshoppers form a large part. It is credited, too, with being a consumer of blow-fly larvæ, and it no doubt eats many other insects harmful to crops. On the other hand, one hears complaints of its ravages on orchard fruit. It certainly will attack garden fruit at times, though this habit is by no means universal. Speaking from personal experience, I can state positively that, when living at Picton, where I had a large orchard, and the birds were in countless numbers, I never saw one attacking the fruit; this experience extended over a period of four years.

NATIONAL MUSEUM MELBOURNE



Type of Country on the Steppes, Tasmania.

Photo. by Miss J. A. Fletcher, R.A.O.U.

Birds of the Steppes

By MISS J. A. FLETCHER, R.A.O.U., Lyeltya, Eaglehawk Neck, Tasmania.

The following notes were made during a two months' stay at The Steppes Post Office, with my friends Mrs. Wilson and family. I arrived there on October 6th, in a heavy snowstorm, in the dusk, our motor having had a breakdown of 2¼ hours on one of the bleakest parts of the road. As we neared the Steppes, all the undergrowth, the fences and the young saplings were clothed in white, the Wattles bending nearly to the ground. One of the prettiest sights was to see the Flame-breasts flitting about or perching on the white-robed fences. I was able to scour only a very limited area immediately surrounding the homestead, as I had no means of getting about except by walking. As I had been sent up to this mountain climate (3000 ft.) on account of a breakdown in my health, I was unable to do much walking or exploring over the rocky forest-clad country. The weather on the whole was bad, wintry conditions prevailing nearly all the time. We had several heavy falls of snow, even in November, also gales and heavy rain.

Synoicus australis. Brown Quail.—I did not see these birds, but heard them calling one evening near the lagoon.

Phaps chalcoptera. Common Bronzewing.—I found several of the nests of these Pigeons, and occasionally met the birds in the forest. They eat the pink berries of a small prickly plant, *Cyathodes accrosa* which is such a feature of the underscrub in this region. One nest was built in the midst of a tangle of Banksia twigs, another in the thicket of a tea tree scrub bordering a creek. I also saw some old nests.

Tribonyx mortieri. Tasmanian Waterhen.—The burning of the reeds of the Lagoon mentioned previously frightened these birds away, and at the time of my visit there were only a few pairs living in the reeds. The noise they made at night was enough to try the nerves of any stranger unacquainted with this bird's vocal powers. Sometimes they chose the afternoon for a concert, and it was most amusing to watch the swift running to and fro of the "singers," each bird apparently running about, acting according to its own taste, and yet in the corrobboree or dance there appeared to be a decided plan of performance. These Native-Hens build several spare structures, which I believe are really decoy nests. They are often placed out in the open as if inviting inspection from the circling Hawks or watching Crows (Ravens). The builders spend much time also sitting on them, but whether to delude their enemies or to rest themselves I cannot say. I have seen as many as seven of these dummy nests within a short distance of the true nest. I have also watched the birds building. They collect the material, pull out the soft strands from a tussock, and carry it in the beak to the chosen spot. If detected, they drop their bundle, coming back for the same should they believe the watcher to have gone. I have seen both birds working at the nest. Another favourite home of these Native-Hens is along the bank of the Shannon, where it passes through St. Patrick's Plains, three miles from the Post Office. I found one nest being made, but none with eggs or young. A pair at The Lagoon had a family running about. They cross the river, or, in fact, any depth of water, in a peculiar style, which resembles walking in water rather than swimming; much of the body appears to be submerged. I have known them to dive into a river and then run under the water some distance before going out on to the bank. They travel against the current, so that the water does not penetrate their outer feathers. One bird covered several yards in half a minute on the clear gravelly bottom of a stream. This may be one way they have of escaping from the Hawks, though more frequently they leave the shelter of the rushes when harried by Hawks and seek the protection of the bracken or scrub.

Porphryio melanotus. Eastern Swamp-hen (Bald Coot).—Only a few birds were frequenters of the Lagoon where once they could be seen in hundreds. Since the destructive fire which burnt out most of the protecting reeds, the Bald Coots have remained at the Lake of the Woods. Food is plentiful in the Lagoon, particularly so as far as frogs are concerned, but the shelter round the edges is not sufficient to protect them from their enemies. Snakes are fond of resorting to the water's edge and eating the frogs which the Bald Coots have previously disembowelled. I made a start to inspect what appeared to be a nest of these birds, when my progress was challenged by a large snake. As the only weapon I had was the leg of my camera, I allowed the snake to keep possession of the track. Later a Raven flew over the spot, and from its actions, I judged the nest to be empty.

Podiceps poliocephalus. Hoary-headed Grebe.—Noticed swimming and diving in the open water. On a previous visit I saw one of these Grebes leave her nest, which was situated on the outskirts of the shorter rushes, where water weeds float towards open water.

Lobibyx novæ-hollandiæ. Australian Spurwing Plover. Plentiful. Every small open space or watery depression appears to have its pair. In the autumn some of the Plovers come round the house and mix with the poultry. One pair nested in the small sheep paddock close by and regularly brought the young ones quite close to the homestead. On October 21st, I disturbed a pair of Plovers whose young were only a few days old. The sitting bird's task must have been an unenviable one when the snow lay on the ground, especially as Plovers choose such open situations on swampy ground. This pair could have had for shelter only the protection of a clump of band grass. I came on the birds suddenly as I was making for a clump of Cider trees, much frequented by Noisy Miners (*Myzantha garrula*). The old birds flew, screeching, above me, then tried to persuade me to come and catch them. I humoured them for a bit, then hid behind the large bole of a cider, from which I could observe any movements of the Plovers in the open space amidst the trees. Both birds flew around in a circle above the tree under which I was hiding, gradually dropping a little lower after each circuit. Finally, feeling satisfied that the intruder had gone, the bird I judged to be the male alighted and ran hurriedly to the far end of the open glade. The female took another survey from the air, then settled on the opposite side of the glade from me. She appeared to probe a worm from the ground, murmured some notes softly, ran a few yards, repeated the worm-catching, then ran again. She kept up this performance until she gained the far end, where her mate awaited her. I could not see the meeting, and was afraid to raise myself for fear their sharp eyes would see me. In another minute, I saw her hurrying back until she reached the same spot from which she had picked up the first worm. The same manœuvre was repeated, and for a third time she came to the first spot, again picking out a worm. I knew there must be young near, and that she was gathering them together while her mate took charge of them. So I watched most carefully. No chick was near her. Yet by the hunching of her back, and the murmuring notes, I felt certain she was guiding a chick. When she was opposite to me, I saw a little downy chicken on my side of the open space. Watching carefully, I

Photo. by Miss J. A. Fletcher, R.A.O.U. A Cider Tree (*Eucalyptus Gunnii*)

noted that when the mother pretended to pick up a worm, the little mite stopped running. As soon as she commenced to murmur and run, her baby did the same, but it never attempted to cross the half chain of grassy land between it and its mother. It was a pretty sight to see the two—the perfect obedience of the baby, the thoughtful care of the mother.

I heard the meeting of the two old birds, then back again came the female, and for the fourth time imaginary worms were pulled from the ground. I saw the chicken out in the open, and just as it neared a large lichen-covered stone, I rushed from my tree. Both birds shrieked above me, but try as I would, I could not find the baby, though I had seen it as I came out in the open. At last I noticed that the lichen on one corner of the stone or rock appeared softer in one place. I looked closer. The lichen was the baby chick, lying flat against the stone, with its head and neck stretched upwards. I moved away to watch what the birds would do. They were still calling above me, but their little one must have heard a new note in the calls. It disappeared suddenly, when I glanced up at its parents. I could not find it again.

The eggs of another pair hatched out in the second week of October, and about December 1st, I found another lot of chicks, which I judged to be a couple of days old.

Some of the Plovers spend much of their time in the shallow waters of the Lagoon, but do not appear to take their little ones there until they are well grown and strong on the wing.

Zonifer tricolor. Banded Plover.—I saw a few of these on the St. Patrick's Plains. They had nearly full-grown chickens with them on the 22nd November.

When returning from a drive to Lakes Arthur, on the 3rd of December, I saw a female Banded Plover, disturbed by the passing of the trap, leave her nest. Evidently she was incubating a second clutch.

Capella hardwicki. Australian Snipe.—I saw one searching for food near the Lagoon on the 14th November. A week later there were several more. I came across a couple on the St. Patrick's Plains, three miles from the Steppes.

Notophoyx novæ-hollandiæ. White-faced Heron.—Seen paddling in the Lagoon.

Botaurus poiciloptilus. Brown Bittern.—My friends always told me that there were no Bitterns at the Lagoon or islands. However, one evening toward the end of November, I heard the well-known booming. From that time I heard the call every night until I left on the 8th December. When prowling about the edge of the Lagoon, I afterwards flushed a Bittern, which seemed to be catching frogs in the shallow, reedy water.

Chenopis atrata. Black Swan.—A couple of pairs nested amidst the islands of the Lagoon. One pair had nine and the other, four cygnets. Judging by the size and plumage of the little ones, the eggs must have been hatched about the end of September. When I paid a short visit to the Lake River end of The Arthur Lakes, I saw numbers of young swans swimming near the small tea tree islands. One flock rose with a rush of wing beats when some grazing cattle, alarmed at our approach, dashed through the shallow water to a peninsula running well out into the lake. This spot looked a fine one from an ornithologist's viewpoint.

There were hundreds of ducks on the waters of this lake. I noted the Black or Grey Duck (*Anas superciliosa*), and the Chestnut Teal (*Anas castanea*). There were others, but too far away from me to be absolutely certain of the species.

Nearer home at the Lagoon I saw Black Duck with young ones and a flock of Grey Teal (*Anas gibberifrons*) settled on the surface, and probing their bills into the slushy mud, until an unlucky movement revealed my whereabouts, and they flew to the far end.

Biziura lobata. Musk Duck.—This fine duck is one of the features of the Lagoon, and the islands in the middle must have many of their nests hidden on them. Without the aid of a flat bottom boat of some description it is difficult to get to the islands. But when standing on some of the small hills, half a mile away, one catches sight of long silvery lines appearing in the green tinge of the water where an old Muskie is having a "motor boat" race across. I have seen the Swamp-hawks following the head of the streak, evidently meditating whether or not it was worth while to make an attack on the swimmer.

When speaking about the Black Duck, I omitted to mention that some years ago one of these ducks hatched a family of nine from a nest in the broad open fork of a swamp gum, where the two large branches joined.

My friends also told me that when the wire netting was first placed along the fences of the runs, the ducks travelling to the Lagoon with ducklings were often nonplussed at the presence of the netting, through some of which it was difficult to get the youngsters. The sharp-eyed Hawks and Crows soon saw them, and added to the mother's difficulties by swooping on the ducklings on the opposite side of the fence from her.

Phalacrocorax carbo. Black Cormorant.—Noted at the Lagoon, also at Lakes Arthur.

Circus approximans. Swamp Harrier.—Observed all day long sweeping over the lagoon and every now and then making a swoop down upon some bird in the rushes. I watched a great fight at the lagoon on my previous visit two years before, between a Harrier and a pair of Bald Coots which had their young hidden in the rushes. Evidently the Hawk had seen the young ones, for he made most determined attempts to catch one, but the Bald Coots eventually drove him off. It interested me to observe the height the Bald Coots jumped to charge at the Hawk. It seemed surprising he did not in the end attack them.

Astur fasciatus. Australian Goshawk.—In October, I found a pair of Goshawks building their nest on a flat limb of a very tall eucalypt standing a few chains in from the Bothwell road, half a mile from the homestead. The tree in which they had built their nest overlooked a flat. This flat was a great haunt of many species of small birds on account of the presence of thick clumps of Banksia trees. The Goshawks did not enjoy a peaceful reign over their country. A pair of Black Magpies was constantly at war with them, continually attacking and chasing them. The whistling call of one of the Hawks to its mate was immediately replied to by the Black Magpie, which was often successful in obtaining the services of several other couples of its species to aid in routing the enemy. But in spite of all opposition, the young Goshawks were reared and had left the nest by December 3rd.

Another pair of these Goshawks owned a nest two miles along the Great Lake road in a tongue of timber running out towards St. Patrick's Plains.

Uroaetus audax. Wedgetail Eagle.—A fine pair of Eagles ranged the open plains, three miles north of The Steppes Post Office. These St. Patrick Plains stretched from The Shannon River across in a north-easterly direction towards the Cider Marsh, on the Arthur Lakes road.

Falco peregrinus. Peregrine Falcon.—A couple seen.

Ieracidea berigora. Brown Hawk.—I saw several of these at different times flying over the rocky ground, possibly chasing rabbits, which abounded there.

Ninox novæ-seelandiæ. Spotted Owl.—I came across one sitting in a thick tangle of Banksia and heard others at night calling from the forest.

Tyto novæ-hollandiæ. Masked Owl.—I should think that this class of country would be suited to this bird. I saw one flying one evening.

Glossopsitta concinna. Musk Lorikeet.—Plentiful in the years when the gums are flowering. This past year has been a record one at the Steppes for the number of trees in blossom. Consequently these birds have been there in large flocks.

Calyptorhynchus funereus. Yellow-tailed Black Cockatoo.—Fairly numerous. I got quite close to them several times when they were intent on searching the fallen tree trunks or the chock-and-log fences for grubs.

Cacatua galerita. White Cockatoo.—Occasionally I saw a few flying over the timber towards the Lake.

Platycercus caledonicus. Green Rosella.—Very plentiful. Some dwellers of these higher altitude have richer colouring in their blue and reds than the low dwelling members of their family. These parrots eat largely of the wild pink berries on bushes that are the chief undergrowth in the forest. They also visit the homestead for the buds on the willows. They were nesting freely. One pair inspected the hole already selected by two Forty-spotted Diamond Birds to the great distress of the small owners. But as the parrot could insert her head only, the first selectors were allowed to keep their home.

I found a nesting hole about thirty feet up in the trunk of a tall Stringy-top Black-butt. The female had not commenced to sit. She laid an egg each morning, between 10 and 11. Her mate, on the several mornings I watched their hole, came and waited for her. She popped out her head, he gave a call, and then off they flew. I tried to obtain a photograph of them, but the site was too difficult.

Platycercus eximius. Eastern Rosella.—In good numbers, but not so numerous as the preceding. They were nesting in the trees on the flat along the road to Interlaken.

Neophema chrysostoma. Blue-winged Parrot.—These birds follow the gum blossoms. On a previous visit (4th January, 1921), I found a pair nesting in a dead tree close to the Lagoon. The nesting hole was 20 feet up in the trunk of the tree.

Neophema chrysogaster. Orange-breasted Parrot.—Their presence also depends on the flowering of the trees.

Pezoporus wallicus. Ground Parrot.—I did not see this bird myself, but was told it used to frequent the tussocks of band grass in the tiny plains around the lagoons. I had hoped to explore St. Patrick's Plains for this parrot. It is said to be there, but I was unable to do so. I have included this note so that some other ornithologist may have a chance to follow up this rare parrot.

Podargus strigoides. Tasmanian Frogmouth.—Seen, but I found only a couple of their old nests.

Ægotheles cristata. Owlet Nightjar.—Locally known by the name of Moth Owl.

Cuculus pallidus. Pallid Cuckoo.—Arrives in the district in September, and leaves before March. I found one of their eggs smashed beneath a sapling in which a Black Cap's nest had been pulled to pieces.

Cacomantis flabelliformis. Fantail Cuckoo.—It is present during the brief summer.

Chalcites basalis. Narrow-billed Bronze Cuckoo.

Lamprococcyx plagosus. Bronze Cuckoo.

Hirundo neoxena. Welcome Swallow.—I noticed that many of the Swallows had their homes built in the burnt-out trunks of large trees. They favoured those with the opening to the east or north, particularly a tree in which they had a choice of two entrances. In 1922 they did not use the house verandah, though there were four or five of their old nests still remaining. My observations tend to show that they are content with one clutch in this colder region.

Hylochelidon nigricans. Tree Martin.—Numerous. Nesting in the trees along the Interlaken Road. Spent much of their time hawking over the Lagoon. At the end of November I found a hatched egg-shell thrown out of nest. So far as I observe these Tree-Martins rear one brood. Many of the migratory birds leave the district during the snowy weather, returning after the lapse of a few days.

Petroica multicolor. Scarlet Robin.—Not nearly as plentiful as the Flame Robin. Is fond of frequenting the level strips of country. It generally chooses the hollow between three banksia cones in which to build its nest, which is thus difficult to detect.

Petroica phœnicea. Flame Robin.—Without doubt the Robin of this Highland country, being present in large numbers. They made a gay spot of colour when the landscape was white with snow. I noticed that the majority of these Robins chose the inside hollow of a burnt-out tree for their nesting site, probably on account of weather conditions. All nests I found were facing east or north. They were built much more warmly than similar nests which have come under my notice in other parts of Tasmania. Again I observed that those nests which were not inside a tree were in a great many cases largely constructed of fur—rabbit fur, chiefly. Others again, in the same positions had an extra foundation of stringy bark. I discovered three nests built on the ground on stones and sheltered by the sloping trunk of a fallen tree. I wish I had seen how they fared during the heavy snowstorms which passed over the district even as late as November. A photograph of one of these little homes appeared in the "Emu," vol. XXIII., pl. 37. Unluckily these little ones were taken, presumably by a ferret, which was picked up close to their nesting spot. The other two reared their families. In contrast to these "ground floor tenements," one pair of Flame-breasts rented a "sky-scraper," namely the broken spout of a limb, quite forty feet from the ground. These Robins are migratory, leaving before the heavy snowy weather commences in May.

The sitting bird comes off to feed in the morning and evening. Her mate is very attentive, helping her to procure her meals when off, and feeding her when on, the nest. He has a peculiar call to let her know he is near, and she answers with a low, squeaky cry. The young feather very quickly, and I lost several chances of photographing some broods through not knowing this. In many cases they had left the nest under the usual fortnight. The Flame Robins appear to be very tolerant of one another. I expect this is because there is an unlimited food supply. In a space of not more than an acre, I knew of eight occupied nests, and probably there would be as many more successfully concealed.

Judging by my observations I should say the Black Magpies are one of the worst enemies of the Robins. They display much of the shrewdness of the Raven in the careful way they examine all likely corners of a tree or stump for the little nest. I spent an anxious five minutes watching a Bell-Magpie walking along a log under which a Robin's nest was built. But the would-be robber did not find it. Fortunately, the brooding bird stayed quietly covering her babies. I have an idea that perhaps this is the reason that some of the Flame-breasts are preferring to build under the shelter of a log. My experience indicated that an average of two out of every three clutches are taken, either before or after hatching.

Erythrodryas rodinogaster. Pink Robin. I heard it calling in a tea-tree scrub on the way to Arthur Lakes.

Amaurodryas vittata. Dusky Robin.—Locally known as "Wood Robin" and "Sad Robin," this latter from the sad tone of its call. Not nearly so numerous as the other Robins. On Friday, 3rd November, a heavy fall of snow occurred in the morning, but melted quickly. In the afternoon I was out with Miss Wilson, and as we were hurrying home through the forest in the midst of a snowstorm, I caught sight of a pair of brown eyes watching us from amidst a circle of shoots round a broken sapling. This was the only Duskie's nest of that year's building I found. There were two eggs of the beautiful bluish-green type in the nest. I think she must have been shielding them from the severe weather. Later I went along to take a photograph of the bird at her nest, but found it lying on the ground and the remains of three eggs near it. Early in December I came on a couple of broods on the wing. The above nest was closely padded with fur, and more warmly built than is the rule with this species.

Pachycephala pectoralis. Golden Whistler.—I often heard them whistling from amongst the Banksia trees. The only nest I found was pulled to pieces. It was being built in a thick branch of a honeysuckle, and appeared ready for eggs. It was lined with the branchlets of the sheoak.

Pachycephala olivacea. Olive Whistler.—Also present in same locality as last named. I happened to see the female, carrying a strip of stringy bark, fly into a low branch of a broken-down Banksia. I watched her twisting this into position, and later found a partly-made nest. More work was done to it for a few days, then it was deserted.

Rhipidura flabellifera. Grey Fantail.—Very numerous. From every description of country around the homestead their merry notes would be heard, even when snow was about. They commenced to nest in the third week of October. I found quite a number of their beautifully-made tiny cradles in situations from two feet above the ground to 20 feet up, on a thin twig beneath the boughs of a long lank Banksia. Another home was on a twig of a wattle tree in a cluster of yellow blossom. Still another was on a bare sloping piece of gum tree bough, beneath the trunk of a fallen tree, and screened from sight by a mat of dead gum branches. This nest had no tail; the slanting position of its support being sufficient for any drainage. I searched and searched before I discovered this home. I endeavoured to photograph it, but on account of the low, cramped situation and the conflicting lights, the picture was not a success. The tiny hen was very tame, and settled on her eggs while I was trying to focus. At last I had everything ready and was just pulling the slide, when a rabbit dashed right between the camera legs, closely followed by a couple of dogs. Result—collapse of everything! The rabbit escaped, but the dogs would not leave.

In place of the hair from the tree-fern the Fantails about here use more shreds of rotten wood and the brown velvet from the Banksia cones in constructing their homes. I watched a pair choosing a site. Several likely places were inspected and tried—the latter by the little hen sitting in the spot and turning round. Finally both birds seemed to agree to one site on a twig by an upright Banksia knob. Away they flew. I thought they had gone, and was looking at another bird, when I heard them come back. Each had a beakful of cobwebs, and in turn twisted it round the small stem and the knob as well. Passing by the same tree in the afternoon, I saw they had the nest a quarter of an inch high, so I decided to return and endeavour to secure some photographs of the building. But weather conditions of sleet and rain prevented me for a couple of days, then I found the nest with the side torn out.

One evening, as Miss Wilson and I were returning home from a ramble, we stopped to watch a shallow water hole, a favourite place for the evening bath of the small forest birds. A female Flame Robin was standing in the shallows, throwing the water over her, shaking her wings, trimming her feathers, then almost sitting down as she splashed around. But we were both much amused at the antics of a Dusky Fantail standing on the dry ground close to the edge, and intently observing what the Robin did. It commenced to imitate every movement of the Robin, just as if it were having a bath itself. When the Robin splashed, it also went through the exact movements, shook its feathers, preened itself, then, just as the Robin was doing, threw the imaginary drops over itself. Whether it imitated the Robin through mischief, or whether the latter's actions suggested a bath to the Fantail, or whether the mimic considered the water too cold, we were unable to decide.

Myiagra cyanoleuca. Satin Flycatcher.—The tall timber on these forest-clad Tiers is just the home the Flycatchers like, consequently they are fairly plentiful. I found many pairs, each owning, as it were, their own stated area of country. In this they built, but they did not always respect their neighbours' selections when in search of food. Their neighbours, however, were not adverse to reminding the trespassers that their rights must be recognised. Yet until November a person might spend every day in the forest, and not know that such a jovial little bird existed. But after this month, the tree tops are lively with the notes of the Flycatcher and its incessant movements. The last calls at night are one of the best guides to the probable situation of the nest, but on account of the latter's resemblance to a knob on the twig of the tree, it would most likely remain unnoticed in the dimness of the twilight. Both birds help with the building. One pair was building close to The Steppes house, so I was able to watch them a good deal. The chosen fork was near the top of a very tall, thin gum. Its height was a drawback, for one's neck ached most dreadfully through holding the head at such an angle. I noticed the birds generally arrived together with their bundle of material, and while one fixed its load into shape, the other kept incessantly moving about the twig, twitching its tail from side to side the whole time. Then the first worker chased a few insects amongst the tree tops, whilst the mate worked her or his material in, then the first builder came back to inspect. The male in particular was singing most happily. Then away they flew in search of more cobwebs, etc.

In spite of their apparent industry they were slow builders, and those I watched ceased work after eleven, but did a little in the late afternoon. When I first saw the owners at work they were only putting a supply of cobweb round the two sides of the fork, then the bottom of the nest was worked at; this I could see when standing beneath, but it was five days before the sides were easily distinguishable.

I found that another watcher was interested in the notes of the merry Flycatchers—the male of a pair of Black Magpies. I saw him often flying along the line of timber, apparently searching for the tiny home. He seemed to understand the call the owners made when at the nest. However, the birds had ceased working at their nest for some days, when, not hearing them, I looked and found it pulled to pieces. One call of the Flycatcher appears to be used to keep in touch with the mate, the other two calls to express its exuberance of spirits.

Grauculus novæ-hollandiæ. Black-faced Cuckoo-Shrike.—Fairly represented in numbers. Migratory, leaving before the end of autumn. I noticed in a nest I had under observation that the male took his turn at sitting. About eleven o'clock I heard a Grauculus call, whereupon the sitting bird, which seemed to me to be the female, looked up, and answered; the mate flew to the edge of nest; she flew away, and he slipped on in her place. I watched this change on several different mornings. First found the nest on 12th November by observing a bird carrying building material to the fork of a small tree.

Cinclosoma punctatum. Spotted Quail-Thrush (Ground-bird).—Heard them calling only once. Was shown a hillside where they used to nest.

Calamanthus fuliginosus. Striated Field-wren.—Present around the lagoon and adjacent flats.

Oreocincla lunulata. Australian Ground-Thrush.—Frequents the mossy tea tree scrubs.

Epthianura albifrons. White-fronted Chat (Banded Tang).—An inhabitant of this district for the last few years only, so I was told. I saw one flock about the banks of The Shannon River, where St. Patrick's Plains stretch to its borders. Some of these had fledged young with them. I found one nest with two eggs on which the female was sitting. The nest was built in a mossy fork, three feet high, on a stunted tea tree close to the Lagoon, 15th November, 1922. I understood my friends to say the Chats left the district in the winter.

Megalurus gramineus. Little Grass-bird.—Heard them calling from the islands of the Lagoon.

Geobasileus chrysorrhous. Yellow-tail Thornbill.—Present in small numbers.

Acanthiza pusilla. Brown Thornbill.—Numerous. Nest in the Banksia and also in the low bushes of the pink berry (*Cyathodes acerosa*). I found a last season's nest of these birds, which was suspended from the top and reminded me of the nest of a Gerygone. The sides were quite free, nor was there any support to the bottom of the nest. Young had been reared in it.

Sericornis humilis. Brown Scrub-Wren.—A frequenter of the fallen timber. A pair, which owned a nest built in the mossy and rotten debris of a chock-and-log fence, were often to be seen enjoying a bathe in the pool mentioned before. Another pair reared their young in a blackberry vine near the house. From a window I watched them feeding the little ones on aphis. The older birds collected a mouthful from the shoots and then gave these to the fledglings in turn. The latter were sitting on a twig of ivy. Some years ago a pair of these shy birds actually made a nest in a hanging basket of Kenilworth ivy in the verandah and reared the young. On a previous visit I was shown the remains of the nest in the centre of the basket.

Malurus cyaneus. Superb Blue-Wren.—Only a few pairs seen. One pair had a nest partly built in the rushes of a creek flowing into the Lagoon (12th November).

Artamus cyanopterus. Dusky Wood-Swallow.—Migratory, reaching the district in October the year I was there, 1922. Commenced to nest, then snow fell, and the birds were missing for nearly a week, when they returned and continued their interrupted work. Preference is given by them to the more open stretches of country, known locally as marshes, generally covered with surface water in the winter and early spring.

Colluricincla harmonica. Grey Shrike-Thrush.—Very plentiful. I am sorry to record that these jovial and friendly birds are too fond of robbing the homes of their smaller brethren. One pair of rascals made their nest next door to a possum's nest, splendidly concealed. Their three young were well grown when I found their nest. This pair were responsible for the destruction of many nests on the flat round about their home. I once watched them trying to find a Fantail's nest. They had heard the smaller bird singing in its merry way about a Banksia tree, and were sure it had a nest. This time they were mistaken. A favourite shrub of these Thrushes is the giant Hakea, and many of their nests may be found in their centre. Sometimes the nests for three seasons are there packed close together.

Pardalotus striatus. Striated Pardalote.—Very numerous. Every elbow of the gum trees appeared to be sheltering a family of the happy little tree-frequenters. Beetles, spiders, moths, mosquitoes, and long-legged insects were taken into the hole of a couple I watched. I could hear excited twitters of the young Pardalotes as each parent entered.

Pardalotus punctatus. Spotted Pardalote.—Also plentiful. Were nesting on the side of the road.

Pardalotus quadragintus. Forty-spotted Pardalote.—I often saw and heard it in the tops of the trees on the hillside above the Steppes. Found only one nesting hole that I knew for certain to be used by these Pardalotes. My attention was drawn to this by the fuss its owners were making because a pair of Green Parrots inspected the hole, but as the Parrot that tried to get in could get only part of her head inside, the owners were left in peace. The Parrots finally chose a hollow in the same tree.

Melithreptus validirostris. Strong-billed Honeyeater.—In fair numbers. One day I was sheltering under a bushy Banksia, and noticed in the twigs above a partly built nest. Presently a Strongbill flew into the tree, and without heeding my presence fixed into her nest the long piece of bark she carried. A few days afterwards some creature pulled the home to pieces.

Melithreptus affinis. Black-headed Honeyeater.—Very numerous. Evidently the trees are rich in their food requirements. They were very affectionate to their mates, and in some of their actions reminded me of the Love Birds, especially when they sat still for quite ten minutes with heads leaning against one another. I found several nests built in the swaying clumps of gum leaves. Both birds worked together in the building, and those I watched arrived at the nest together and left together, flying in the same direction. The one waited, hopping about the twigs whilst its mate wove in the material it had brought. Beneath one nest that had its side torn out, I found the egg-shell of a Pallid Cuckoo as well as the remains of the Blackcap's own egg. The nest was just shaped when found on 8th November, and it was on the 24th I found it destroyed.

Acanthorhynchus tenuirostris. Eastern Spinebill.—Noted extracting honey from the garden flowers.

Meliphaga flavicollis. Yellow-throated Honeyeater.—Numerous. One nest I found was built in a clump of the pink berry bush. The young had been reared, so this bird must nest here in September.

Phylidonyris pyrrhoptera. Crescent Honeyeater.—Very fond of the honey in the flowers of the giant Hakea.

Meliornis novæ-hollandiæ. Yellow-winged Honeyeater.—Numerous.

Myzantha garrula. Noisy Miner.—Plentiful. For several years some of the Miners have frequented the neighbourhood of the house to which they come soliciting food. They are fond of sugar, and try to carry a beakful of it away to their young while still in the nest. They return in a second for a fresh supply, evidently the first had melted before the nest was reached. By degrees the young are brought close to the house. If not attended to, the Miners go round all the windows tapping on the panes to attract attention. Should the table be set and the door left open, the Miners are soon in, digging their bills into the sugar as fast as they can, or eating the jam in record time. Even if one is in the room they do not mind. If the door is left open during the progress of a meal, some of the birds fly into the porch scolding the human partakers for usurping what they consider to be their right.

Anthochaera paradoxa. Yellow Wattle-Bird. In fair numbers. Nesting freely in the tea-tree scrubs. The nests I found were generally placed near the top of a tall thin tea-tree. Two others were suspended in clump of hanging leaves about thirty feet up in a eucalpyt.

I understand that the Honeyeaters in general are very fond of the sap of the Cider Tree. This oozes out and form long streaks of congealed sap down the stems.

Anthus australis. Australian Pipit.—Migratory. Nests in the tussock grass or under a log.

Zonæginthus bellus. Beautiful Firetail.—Noted a few.

Corvus coronoides. Australian Raven.—Too plentiful for a sheep-owner's peace of mind. Four nests were seen by me.

Strepera arguta. Hill Bell-Magpie.—Not so numerous as the Black Bell-Magpie. I saw two nests. Under one I found a dead fledgling which had over-balanced. It was partly feathered. Feathers were appearing along the sides of body; the wing and tail feathers were a few inches long. The other fledglings were in a near-by tree being fed by the parents. 26th November.

Strepera fuliginosa. Black Bell-Magpie.—I have already written about these birds in a former issue of "The Emu" (Vol. XXII., Part 1). Plentiful. The pair which frequent the house always build their nest in a position enabling them to watch the back door. Last thing at night the male bird always calls to the hen sitting on her nest. Her mate does not roost very near. It always seemed to me as if he called, "Are you all well, dear?" and her answer could be construed into, "Quite well. Where are you?"

I saw the male of another pair carrying a partly grown rabbit for its young ones. The rabbit was too heavy for it to take up to the nest, so it found a spur on a log, on which it fixed the rabbit while it tugged at it. The picture I took of the birds so doing was an excellent one of the logs, but the rabbit did not show plainly owing to the movements made by the tugs of the bird.

Cracticus torquatus. Grey Butcher-Bird.—Fairly numerous. Saw several used nests in some Banksias along the Tunbridge road.

Gymnorhina hypoleuca. White-backed Magpie.—Not plentiful. Nesting in tree near the lagoon.

Some Jervis Bay Birds

By H. WOLSTENHOLME, R.A.O.U., Wahroonga, Sydney.

Birds were plentiful about Jervis Bay at the end of November, 1923. At the village-port of Huskisson, on the bay, some eucalypts were then flowering, and the blossoms were being eagerly explored by Musk Lorikeets (*Glossopsitta concinna*) and numbers of Regent Honeyeaters (*Zanthomiza phrygia*). Among the blooms and leafage of the high trees, the beauty of the Honeyeaters could not be seen, and their only calls were the discordant notes characteristic of so many of the family as they fed and squabbled together. But, when the birds came down into the smaller trees, one could admire the bright contrasts of their black and light yellow plumage, and hear, sometimes, their bell-tone notes.

Here in a small Turpentine tree (*Syncarpia laurifolia*) a nearly-completed nest was found resting securely in a triple fork less than fifteen feet from the ground. One bird—the female, presumably—was gathering bark from the soft-barked eucalypts round about, the other bird being always near her. She would fly, with large pieces of bark in her bill, at great speed direct to the nest; the male bird following so closely behind that his beak seemed sometimes to touch her tail. He would take up a position close to the nest, nearly always in the same place, and, while she was busy arranging the material, he would sound the pretty tinkling notes of the species. This call consisted of series of three notes at a time—a single note followed by another repeated so quickly that it might be called a double note. This double note was several intervals lower in tone, the drop being, in musical terms, from the upper tonic to the mediant. The first note was like the single "tink" of the Bell-Miner (*Manorhina melanophrys*), but softer and less explosive. The plumage when seen closely in life is a wonderful combination of black and light yellow in shining hues. If the bird flies above one, the bright primrose yellow of the wing-quills and of the large tail (often spread during short flights) at once catches the eye, and is in marked contrast with the rich black of the head and neck. The light-tinted "fleshy excrescence" round the eye gave the bird, for some time, the ill-sounding but now happily abandoned name of "Warty-faced Honeyeater." Originally the bird had been called the "Black and Yellow Bee-eater" (*Merops phrygius* Latham); another name was the "Mock Regent Bird."

Two more nests were near by, about twelve feet up, in stringy-bark trees. These probably contained eggs, as the birds were in attendance; but I was not able to climb and look for the rich dark-coloured eggs. All the nests had a similar situation in the tree that a Yellow Robin (*Eopsaltria australis*) might have chosen for its nest. They were open, cup-shaped structures of brown bark, and were larger than the nest of the Yellow Robin, though not as large or untidy on the outside as that of the Grey Thrush (*Colluricincla harmonica*).

Other species, too, were breeding here. A male White-shouldered Triller or Caterpillar-eater (*Lalage tricolor*) was sitting calmly on its compact little nest on the other side of the Turpentine tree in which the Regent Honeyeater's nest was situated. This Caterpillar-eater, it may here be remarked, has been exceptionally plentiful this season about Sydney. The bright canary-like singing of the male birds has been heard continuously during the breeding season, not only in the bush, but in the parks and private gardens of the outer suburbs. In an adjoining tree—a Eucalypt—about twenty feet away from the Turpentine tree, a pair of Leaden Flycatchers (*Myiagra rubecula*) were taking turns sitting on their dainty lichen-decorated nest fixed on a broken dead bough. It was a Robin-like nest, and very hard to see even with the bird on it, with the bill and tail only just visible. They (the male bird chiefly) sometimes while sitting on the nest, gave many pretty calls, some of which I had not heard before.

In the next tree four or five steps away, the large pendulous nest of a pair of Noisy Friar-birds, usually called Leatherheads in New South Wales (*Philemon corniculatus*) was barely visible in the dense foliage of a Eucalypt. A parent bird was making frequent visits to the nest feeding young ones, and on one visit it was seen to carry a large brown moth. The next tree again, a few feet off, held another Regent Honeyeater's nest. These five nests in four adjoining trees almost in a line could be watched at the same time, while low in a tree immediately behind could be heard at intervals the chirpings of the two young Jacky Winters (*Microeca fascinans*) as they were fed. They looked as big as their parents, and, though bulging over the side of their tiny nest, they managed somehow to escape falling out. Just here, too, Rufous Whistlers (*Pachycephala rufiventris*), Golden Whistlers (*P. pectoralis*), White-throated Warblers (*Gerygone olivacea*) and Scarlet Honeyeaters (*Myzomela sanguineolenta*) were singing their sweet songs. Further away in some swampy ground several pairs of Emu-Wrens (*Stipiturus malachurus*) were flitting about and hiding amongst the long grass and tussocks. In the surrounding scrub and timber we found nests of the following species:—Black-faced Cuckoo-Shrike (*Graucalus novæ-hollandiæ*); White-winged Triller (*Lalage tricolor*); Dusky and White-browed Wood Swallows (*Artamus cyanopterus* and *A. superciliosus*); Yellow-faced Honeyeater (*Meliphaga chrysops*), nest with young birds, five feet from ground; Brush Wattle-bird (*Anthochæra chrysoptera*), two nests, one in a *Casuarina*, one in a *Banksia serrata;* Noisy Friar-bird (*Philemon corniculatus*), one nest, low for this bird, only about ten feet from the ground; and Variegated Wrens (*Malurus lamberti*). While examining the nest of the Variegated Wren, which contained young ones, two adult male birds in fine plumage scurried about beside me with heads well down and long tails lowered and trailing on the ground. The birds looked like mice, but for their bright colours. The tail of this species has always appeared to me to be longer than the tail of the common Blue Wren (*M. cyaneus*). A comparison of length measurements would be interesting. Other Honeyeaters were numerous here, and also some Cuckoos, including the Square-tailed Cuckoo (*Cacomantis pyrrhophanus*), whose loud, melancholy notes in descending scale were frequently heard. This Cuckoo was plentiful about the same time in the Sydney National Park.

A Correction. — Anent "Australian Sea Birds," mentioned in *Emu, ante,* p. 77, and a large Skua obtained at Queenscliff, Victoria. The name of the Skua should read *Catharacta antarctica,* not *Megalestris maccormicki*; it is separate from the larger dark species, *C. lonnbergi,* Mathews.

Birds of the Tararuas

By A. S. WILKINSON, R.A.O.U., Masterton, N.Z.

The Tararuas are an imposing range of mountains which add much to the beauty of the Wellington province. These mountains, which can be reached in a few hours by train from Wellington City, have a considerable attraction for trampers and nature-lovers. They run almost due north and south for a distance of about sixty miles from where they join the Rimutakas in the south to the Manawatu Gorge in the north. They are covered, except above the snow line, with virgin forest consisting mainly of Beech (*Nothofagus*) on the eastern slopes, while on the other side, which has a greater rainfall, these trees are few and far between.

Although not considered high, some of the peaks reach an altitude of 5000 feet, the principal ones being Mitre Peak, Mounts Hector, Holdsworth, Dundas, and Crawford.

Mount Hector, at the head of the Hutt Valley, can be seen from Wellington, and is the highest mountain in view. It is over this peak that the only good track across the Tararuas leads, and it takes a fairly fit person, carrying a swag, about three days to traverse the distance between Greytown, on the Wairarapa Plains, and Otaki, on the West Coast. There are five huts along this track, kept in order and maintained by the Tararua Tramping Club—a very active association, especially in the summer months. One of their rules is the protection of the native birds, forest, and natural features.

Mount Hector is especially interesting from an ornithological point of view, as it was on this mountain that Mr. Morgan Carkeek procured a Kiwi, said to be *Apteryx occidentalis,* the only place in the North Island where it has been found (see Supplement to the "Birds of New Zealand," Vol. I., page 23). The Tararuas, having the largest forest in the southern part of the North Island, and being a forest reserve, will be a sanctuary for our native birds for all time.

Unfortunately possums which were liberated a few years ago on the western side have spread through the ranges, and are doing a considerable amount of damage to the bush trees; those principally affected are the Mahoe (*Melicytus ramiflorus*), Kotukutuku (*Fuchsia excorticata*), and the Wawapaku (*Nothopanax*), or five finger, as it is generally called by bushmen.

I have travelled down gullies for hours where these trees grow without seeing a healthy specimen, most of them with all the leaves and young shoots eaten off and hundreds dead. As *Fuchsia excorticata* and *Melicytus ramiflorus* are much frequented by our native birds, the former by the Honeyeaters and the latter by the Native Pigeon, it can easily be seen how much harm the possums are doing.

NATIONAL MUSEUM MELBOURNE

Mount Holdsworth, Tararua Mts., N.Z.

Photo. by R. H. D. Stidolph, R.A.O.U.

Camp at Donnely's Flat, Tararua Mts. N.Z.

Photo. by R. H. D. Stidolph, R.A.O.U.

From the top of Mount Holdsworth, which can be reached from Masterton in about six hours, a glorious view of the surrounding country is obtained, all the Wairarapa Plains, from Palliser Bay to the Puketoi Ranges, and the sea beyond Castle Point can be seen. On the western side the snow-clad Kaikouras in the South Island and the hills about Pelorus and Queen Charlotte Sounds up to Durvilles and Stephens Islands stand out quite clearly.

Away over beyond these again, to the west, the hills about Collingwood up to Cape Farewell are in sight, if the day is clear, while almost at one's feet, and looking as though it was only a chain or so from the mainland (the channel is three miles wide) is Kapiti Island, famous as the home of that great Maori warrior Te Rauparaha, and the centre of the whaling industry in New Zealand in the good old days.

This island is now one of our bird sanctuaries, where birds rare on the mainland can be seen, thanks to those bird-lovers who have worked so assiduously for this laudable purpose.

In a north-westerly direction Mount Egmont, about 135 miles away, can be seen quite distinctly. In December and January the tops of the ranges are covered with beautiful wild flowers, and present a lovely picture to anyone who cares to get out into the open.

The Tararuas were the home of that very rare and interesting bird—the Huia—now nearly, if not quite, extinct. Wekas, Robins and Crows were also plentiful on these ranges 25 or 30 years ago.

The last authentic record of Huias being seen on these mountains was provided by Mr. W. W. Smith, R.A.O.U., who saw three on Mount Holdsworth 18 years ago. Quite recently reports have come in from various sources of Huias having been seen. None of these reports, however, has been supplied by a competent bird observer.

I have to thank my friend, Mr. R. H. D. Stidolph, R.A.O.U., for many hints. He has accompanied me on all my week-end trips about the ranges, and by his careful observations of the habits of our native birds assisted me considerably.

To Captain E. V. Sanderson, R.A.O.U., I am also indebted. Through him I spent Christmas Week, 1923, on the western side of the Tararuas, hunting for Huias, and again in February last I spent an enjoyable week with him and his party on another search after these interesting birds.

The nomenclature used in these few notes is mainly from Hutton and Drummond's "Animals of New Zealand."

Pseudogerygone igata. Grey Warbler.—This little bird is seen and heard all day long in the ranges, and is one of the first birds to be met. Its nest is rather hard to find in the thick bush, and although I have spent much time hunting for them, I have found only one on the mountains. It was situated in a Tawa (*Beilschmiedia tawa*), 17 feet from the ground, and contained a young Shining Cuckoo (*Lamprococcyx lucidus*) about a week old. We made a careful search of the ground below the nest, but could find no trace of either eggshell or young Warblers. The above-mentioned tree is a favourite nesting tree with the Warbler in this locality, as besides the one found on the ranges, most of the nests found by me in different parts of the Wairarapa were placed in the Tawa tree.

The Grey Warbler is one of the natives that never seem to vary much in numbers. If anything, they have increased around these parts during the last ten years. It is one of the most useful birds we have, and must, in the course of a year, destroy an enormous number of insects. There are always some about my place, searching for aphides in the orchard and rose garden. This bird and the Silvereye rid our gardens of insect pests. A pair have built, and reared young, in the hedge around my orchard for three seasons past. During the last summer they reared two broods of young Warblers, but the third attempt was a failure, as far as Warblers were concerned, as the parasitic Shining Cuckoo had discovered and made use of the Warblers' nest, with the result that the Warblers had to rear the young Cuckoo. They were in and about the orchard for three weeks, with the young Cuckoo continually crying for food. Although feeding it most diligently they did not seem able to satisfy the hungry youngster.

Both birds were feeding it for three weeks, but later I noticed only one feeding the young bird, the other Warbler having apparently become tired of the business. About this time, the young Cuckoo was seen to be getting some insects for itself. The Warbler, which I took to be the female, was not so attentive now, and the Cuckoo was not so persistent in its demand for food. A day or two after this the interesting party was broken up, and the Cuckoo was seen no more.

I regret now that I did not catch the young bird and put some distinguishing mark or ring on it, to see if it would return to this locality next season. It would have been an interesting experiment.

Petroica toitoi. White-breasted Tit.—Though frequenting the dense bush from the foothills to the snow line, this pretty little bird seems to prefer the edge of the forest. It is very fond of the patches of trees and shrubs which often spring up in damp gullies on bush clearings a few years after a burn. In these places, especially if they are very wet, a bush fire very often burns only the leaves and small branches of the timber, and sometimes there are patches of fallen bush missed altogether by the fire. In a few years, trees such as the Kotukutuku, Mahoe and Wineberry, as well as many others, grow to three or four inches in diameter, thus affording shelter to the Tomtit, and as there are many decaying logs in which grubs abound, the Tit does not have far to go for food.

There are thousands of acres of this class of country on the Tararuas, especially on the western side, so that these little birds have plenty of cover and feeding ground. Another favourite place for them is the openings in the bush made by the rivers. On some of the mountain streams there are small flats, and trees, uprooted by floods, are being washed down continually. They often lodge on the riverbeds, which as a rule are wider on these flats. In time this process forms an island, and as it gets larger, it forces the river out on both sides, making a considerable opening in the bush. In these localities one may see quite a number of Tomtits.

Mr. Stidolph and myself found a nest in just such a place as I have tried to describe. It was placed on a ledge in the river bank that had been scoured out by a flood. The nest, which contained two young birds, was just 3 ft. 8 in. above the swiftly running water and eight inches from the top of the bank which overhung the ledge.

It would have been interesting to watch the young birds making their first flight. The river was about a chain wide at this particular place, and it being impossible for them to get on to the bank unless assisted by the parents their first flight would be a considerable one. The young Tits were coloured like the adult female. Some calamity must have overtaken this happy family, however, because when my friend was passing along that way some weeks later he inspected the spot, and was surprised to find the wing of one of the young birds in the nest, which otherwise was not in any way disturbed.

Rhipidura flabellifera. Pied or Grey Fantail.—This charming little bird may justly be deemed the bushman's friend, as it is always in evidence. They seem to like the isolated patches of bush near the rivers and creeks on the plains better than the mountains. About April they generally come down about the plains often invading houses and sheds after flies. They build the neatest nest of any of our native birds, and nearly always build near water. They are very fond of building on a branch of the rangiora (*Brachyglottis repanda*), a tree with large leaves. The nest is placed in such a position that, at a distance, it looks like a leaf. I have often hunted for the nest in a clump of these trees for quite a time before I succeeded in discovering it. The Coprosma is another tree much to their liking, but when built in this tree the nest is not hard to find.

In the last week of January this year I had the pleasure of watching a family of Fantails being fed in a patch of bush close to my home. There were three young ones perched on a branch, and the old birds fed them one after the other. I watched them for about an hour, and during that time I never saw one fed out of its turn.

Rhipidura fuliginosa. Black Fantail.—Mr. Stidolph saw one of these birds in the bush close to the track that leads to the top of Mt. Holdsworth from Masterton. I was very much surprised to hear of its being seen so far north as this. Had any other person told me that the Black Fantail had been seen in that locality, I would have been a bit dubious. As far as I can ascertain, this must be a farthest north record for this bird. It belongs to the South Island, very rarely coming across Cook Straits.

It has been observed occasionally in the Wellington Botanical Gardens, and also in the bush at the back of Days Bay, across the harbour from the city.

Certhiparus albicapillus. Whitehead.—This is one of the most interesting and at the same time most useful birds that we have. It is interesting from the fact that Buller, in his Supplement, states that he travelled for a long time before he succeeded in shooting a pair. He said then that they were the only ones he had heard of on the mainland for ten years or more. They are very useful to the forester, as they are purely insect feeders.

They nearly always, except in the breeding season, hunt in flocks, and present a pretty picture when they are feeding, some on the branches, some on the leaves, and some hanging upside down on the moss-covered trunks of trees.

The Popokotea, as the Maori calls him, seems to like certain parts of the ranges better than others.

In some of the valleys of the Tararuas these birds are quite plentiful, while in others only a few miles away you may travel all day and only see a few Whiteheads. It is hard to say why this should be so, as to all appearances the bush is exactly the same in both places.

These birds, when feeding in flocks, are sometimes accompanied by Parrakeets, a fact that has puzzled many. The first flock of Whiteheads that I saw in the Tararuas was accompanied by two Parrakeets (*Cyanorhamphus auriceps*). The flock moved through the bush fairly fast, and I kept up with them as long as I could to find out what the Parrakeets were feeding on; but I was not able to do so. The Parrakeets kept up a continual chatter all the time they were with the flock.

The Whitehead is a very inquisitive little bird, and any unusual noise, especially if like a young bird in distress, will entice them down. I have seen them come down to within a few feet of a friend who lay concealed beneath the ferns blowing a squeaky note on a piece of tobacco tin with a hole in it. At that time there were numbers of other birds; six different species I counted, and all were in a more or less excited state.

I have not been fortunate enough to find the nest of the Whitehead, but intend to search closely next season to find the nest of this bird, which that great ornithologist, Sir Walter Buller, thought was almost extinct, but to our great joy it has come back.

Anthus novæ-zealandiæ. Ground Lark or Pipit.—One of the few native birds that have prospered since the pakeha came to this country. The clearing up of the bush has given it more feeding grounds. This bird can be seen all over the country;

often when one is cycling along a country road one or two of them will fly along a few yards ahead of the cyclist, then alight on the ground until one is nearly on top of them before they will fly again. I have seen this bird on the top of Mount Holdsworth, which is 4800 feet high.

In the autumn they congregate in large numbers, and seem particularly restless at sunset.

Zosterops lateralis. White-eye or Silvereye.—Perhaps the most widely spread bird we have; it is just as much at home on the mountains as in the orchards of the settlers on the plains. As I write there are six of these busy little birds cleaning the rose bushes of green fly just outside my window. We always have some of these useful birds about the place. In the winter we put something out for them to eat—scraps of bread, or suet, of which they are very fond.

Because this bird takes a little fruit now and then it is not on the protected list, but most people recognise its good points, and make allowance for the very slight damage it may do. With its pretty little hanging nest and the lovely blue eggs that it lays, it offers a tempting bait to the small boy; but fortunately the nest is not easily found. I have heard of the Shining Cuckoo using the nest of this bird for its parasitical habits, but I have never found a nest of the Silvereye with a Cuckoo's egg in it.

Prosthemadera novæ-zealandiæ. Tui.—The Tui is one of our birds that must to a certain extent be affected by the possum, as the Kotukutuku, on which this animal feeds (eating the leaves and young shoots), provides the Tui with a great deal of its food. The nectar contained in the flowers and the berries—konini, as the Maori calls them—enter largely into the Tui's bill of fare.

This tree is perhaps the most important of our fruit-bearing trees, as the flowers and ripe fruit can be seen on the tree at the same time, so the Tui must suffer in the long run. This bird is at times fairly common on the ranges, but it, like some of the others that I have mentioned, can more often be seen on the Plains, especially when the New Zealand Flax (*Phormium tenax*) is in flower, and again when the Gum trees (*Eucalypts*) and Acacias are in bloom. Last season I saw six in one Gum tree, and that is quite an unusual number to see these days about these parts. I believe the Maoris are responsible to a great extent for the decrease in numbers of this lovely bird, and perhaps the pakeha is as bad out in the back blocks. Not only is this bird shot, but Pigeons, Kakas, and Ducks are destroyed in spite of the Animals Protection Act. I have seen only one nest of the Tui on the ranges, and that was a deserted one situated in a Kotukutuku, about eight feet from the ground. It was built of moss, small twigs, and a few leaves—the twigs sticking out in all directions, making a very untidy nest, which measured just 10 inches across. The nest receptacle was 4½ in. x 4½ in., and just under 3 inches in depth. The nest had not been sat in, the birds having deserted it for some reason best known to themselves.

Of four nests that I have known on the Plains, three were in the Solway Showgrounds, out of which only one lot of young birds was reared. One of the other nests when found had three lovely pink eggs, and was situated in a Monterey Pine (*Pinus insignis*), twelve feet from the ground. Unfortunately the nest was found by someone else, for when we went over to take a photo., the eggs were gone. The third nest was deserted without being made use of. The fourth was found by Mr. Stidolph in a Titoki tree (*Alectryon excelsum*), twenty-five feet from the ground, and contained three young birds just ready to fly. We climbed the tree and exposed two plates, which, when developed, were found to be hopelessly under exposed, and consequently useless.

The Tui has, I think, increased in numbers about this locality during the last few years.

The passing of the Animals Protection Act 1922 no doubt in the more settled districts, at all events, has been a great blessing to our native birds, of which the bird under notice is to the older hands one of the most interesting.

Anthornis melanura. Bellbird.—This, like the Whitehead, is one of our birds that has returned to districts where a few years ago it was unknown. Formerly it was one of the most common birds on the Tararuas, and then gradually disappeared, to return within the last year or so. I have roamed about the ranges for years, and up till two years ago never heard or saw a Bellbird there.

On Mount Holdsworth in the first week of January, this year, we were delighted to hear the daylight chorus of this famous bird. We had just arrived at the edge of the bush on the snowline at daylight when the birds started.. There must have been dozens of them, chiming their beautiful notes. The Bellbird is pretty well distributed over the ranges now, and will no doubt make its way down on to the Plains in time. I have not found the nest of the Bellbird on the Tararuas, but found plenty of them when, as a boy, I roamed the hills in the Nelson district.

Acanthidositta chloris. Bush-Wren or Rifleman.—The smallest of our native birds, and on this side of the Tararuas one of the commonest, though it is often overlooked by trampers who are not bird observers. We found a nest of this little bird in the Tauherenikau Valley in November, 1923. We were walking down the river, and on a little flat we noticed a pair of these birds flying to and fro between a clump of trees and the main bush. After watching for some time we saw one of the birds fly to a root of a tree that had been washed down the river, and lodged on the bank. We looked closely, and at last found the nest in a very small opening 1½ inches high and an inch wide. The birds were feeding young, and were very excited while we were in the vicinity of the nest. It was impossible to see inside the hole, and we would not chop the nest out, so do not know how many young the nest contained. The old birds were carrying small insects. The opening was more like what a spider would use for a nest than a bird, and small as the Rifleman is, the parents must have had a difficulty in squeezing through the opening. The root in which the nest was situated was that of a Rata (*Metrosideros robusta*).

Halcyon vagans. Kingfisher.—The Kingfisher can often be seen on the foothills at the edge of the bush close to the rivers. I have not seen its nest on the ranges, but found several on the plains. I think this bird has increased a little in these parts during the last few years.

Lamprococcyx lucidus. Shining Cuckoo.—A bird whose pleasant notes can be heard all day long through the summer months upon the mountains. This bird generally puts in an appearance here early in October. Mr. Stidolph first heard them in 1922, on the 14th October, and in 1923 we both heard them for the first time on the same date.

Urodynamis taitensis. Long-tailed Cuckoo.—Like the Shining Cuckoo, this bird is fairly common, and can be heard screeching at night as well as in the day-time. Although you may hear one screeching in a tree a short distance away, you will be lucky if you get a glimpse of the bird, as it is shy and wary, and moves off unless approached very quietly.

I was out on the ranges a few months ago with a party which included a bushman who could imitate the bird's screech to perfection. We were on top of a leading ridge, when the bushman gave one or two screeches, and almost immediately a Long-tailed Cuckoo settled in a tree just above our heads. As we were in sub-alpine scrub (Stunted Beech, *Nothofagus Menziesii*) not ten feet high, we had a good view of the bird. The Cuckoo could not understand where the other bird that was calling was, and stayed in the tree for about five minutes peering down, while we kept as still as possible. After another minute's inspection, he gave a wild screech, and then flew into a gully.

Nestor meridionalis. Kaka.—The Kaka, once the commonest bird on the ranges, is now rather scarce. On a day's tramp one or two may be heard, but more often the note book will show that the Kaka was not at home. On certain parts of the Tararuas, however, it is still possible to see them, sometimes six or eight together. They are birds which can be called down by anyone conversant with their notes. After a flock settles in the trees any unusual noise, as long as it is not too loud, will keep them there, and by imitating some of their notes they can be enticed almost to the ground. Uttering their harsh cries, some of the flock will fly away a chain or so, but keep on making a clicking sound with the tongue against the roof of the mouth, and back they will come, more excited than ever. By this time we noticed that other inhabitants of the bush have come along to see what all the noise was about. This is, I think one of the most delightful sights a bird-lover can witness, to see half a dozen different species of birds all flocking together, curiosity showing in every movement, all of them peering down trying to find out what sort of a bird was making the queer noises beneath them. However much we wanted to stay and watch them, our time was limited, and we had to move on. I have not seen the nest of this bird on the Tararuas.

Cyanorhamphus novæ-zealandiæ. Red-fronted Parrakeet.—The bird under notice is not very common on the ranges. In the spring it can often be seen low down on the Kotukutuku, the berries and young shoots being the attraction. It must often during the winter months have a hard struggle to obtain a meal. I have a male of this species that I have had for nearly 10 years, and he is a lovely bird. I had a pair of them, which I kept in a large aviary, but the female died about two years ago.

Cyanorhamphus auriceps. Yellow-fronted Parrakeet.—This Parrakeet is even scarcer than the preceding one. I have seen this bird, too, feeding on the Fuchsia, and on one occasion I was within a few feet of one that was too busily engaged in eating the berries of that tree to notice me. The possum has not yet reached the part of the ranges to which I am referring, where there are acres of these trees, and one can nearly always see some birds there, especially Honeyeaters, and often Pigeons.

Nesierax australis. Bush Hawk.—I have seen this bird only once on the mountains, and that was in the Tauherenikau Valley on the 11th November, 1923. He was flying up the valley just at daylight, giving a shrill cry, which I should imagine would strike terror into the heart of any bird. Although it generally lives in the mountains, it sometimes comes down on to the plains. I once saw this bird catch a Sparrow on a stack of oats. The Hawk came round the stack like a flash, and caught the Sparrow, and flew off to some trees close by, where it could be observed devouring its victim.

Circus gouldi. Harrier.—Although a bird of the plains, this fine Harrier can often be seen flying around on the ranges, particularly over the bush clearings on the foothills after rabbits, or some luckless lamb that has died. The nesting site of this bird is generally in a swamp. I have known two nests both situated in raupo swamps, one quite close to my place, where I had ample time and opportunities for observing the nest. When found, the nest contained two young ones, which when approached too closely, would throw themselves down with their ugly-looking claws sticking up in the air. It was amusing to watch them when they adopted this menacing attitude.

Ninox novæ-seelandiæ. Morepork, Spotted Owl.—The Morepork is rather scarce, and is more often heard than seen. By anyone conversant with their habits, they can often be found in the day-time. They like the dark gullies and thickest bush, and sometimes one tramping through these places will find one perched on a branch. When found in the daylight they are easily caught, and often have I snared one with a bootlace on the end of a stick. I remember seeing a few years ago four of these birds after mice. A chaffcutting gang was working, and finished the last stack about half an hour after dark. The birds had evidently been accustomed to come to the stacks after mice. As usual when a set of stacks is being cut the mice make for the stack that is left. Consequently, when the last one is cut, there are hundreds of mice, which scuttle in all directions. On this occasion there were four Moreporks, and they were catching the mice wholesale, and so intent were they that they took no notice of the engine or of the men that were busy packing up the gear for the night. Mice could be heard squeaking in every direction.

Hemiphaga novæ-zealandiæ. Pigeon.—One of the handsomest birds we have, of which the Tararuas, like other parts of the country contained great numbers. Although still to be seen singly or in pairs, I am afraid it is often shot. It is very fond of the berries of the Miro tree (*Podocarpus ferruginea*), and when these berries are ripe, numbers of Pigeons can be found on them. In a good season the birds, when feeding on Miro berries get very fat, and seemingly stupid, and anyone can stand under these trees with a pea-rifle and shoot them down; the birds being too lazy or stupid to fly away at the report of the rifle. They will remain in the tree until all are shot, taking no more notice than just cocking the head to one side when one of their unfortunate companions tumbles to the ground. Mr. Guthrie Smith, of Tutira, Hawkes Bay, in his interesting book, "Birds of the Water, Wood, and Waste," of which I am the proud possessor of a copy, gives an admirable account of the nesting habits of this bird. I have not had the pleasure of finding the Pigeon's nest

Phalacrocorax carbo. Black Shag.—This much-persecuted bird is occasionally seen flying up and down the rivers. There were several shaggeries of this fine bird on different parts of the ranges, but most of them have been destroyed.

Phalacrocorax brevirostris. White-throated Shag.—This Shag is sometimes seen right back in the ranges. On a recent excursion we found a shaggery of eight nests all containing young in various stages of plumage, some nearly ready to fly. This colony was situated over a deep pool of water on the side of a very steep cliff in one of the roughest gorges quite 25 miles from the sea. The nests were built on the branches of a Karamu (*Coprosma lucida*), which grew straight from the cliff. Unless discovered by fishermen, who see in every Shag a supposed enemy to their interests, this shaggery is quite safe, as the situation is too rough for most people to travel.

Anas superciliosa. Grey Duck.—I have often seen this Duck on the mountain streams, sometimes a single bird, but more often in pairs. On several occasions I have seen a pair with a brood of ducklings. It is an interesting and pretty sight, when suddenly disturbed, to see the old birds using distress signals to entice intruders away from their precious brood. I was out once with a party when, on rounding a bend in the stream, we came right on top of a pair that had three young ones with them. I was so interested in watching the duck desperately using the broken wing stunt to attract our attention that I did not notice one of the party with his gun up ready to shoot until surprised by the order of "Look out." I immediately knocked up his gun, and after a rather heated discussion I persuaded him to let the Ducks alone, and thus prevented a tragedy from overtaking this little family. Where the sport in shooting birds with young ones like this comes in I cannot for the life of me understand.

Hymenoloemus malacorhynchus. Blue Duck.—This interesting and rare bird is now seen only in the very roughest gorges. We have followed up the different creeks on different parts of the ranges for years, but never managed to see the Whio, as they are known to the Maoris, until last Christmas (1923), when out on a Huia-hunting expedition. Climbing down a rough creek on the other side of the ranges we came on to three of these Ducks, that were feeding on some shingle beds. The birds at once took to the water, not attempting to fly, but working their way down the stream as fast as possible. They soon left us, as the creek was too rough for us to travel fast enough to keep up with them. However, about a quarter of a mile farther down we came on them again. This time two of them flew down stream round a bend, but the third one we could not find anywhere. On going on down stream on our way to the camp, the two that had flown down before now flew back over our heads on their way up stream. On a second trip after Huias in another locality some 12 miles away from where we had seen the first Blue Ducks, we came upon another pair, but unfortunately never got a good view of them, as the dog we had startled them and we never saw them again. I think when hard pressed this bird will hide in holes in the creek bank or under fern.

Most of the twenty-four indigenous birds mentioned in these few notes I have had the pleasure of studying in their native haunts. Various reports of other native birds being seen on the Tararuas come to hand now and again. The North Island Robin (*Miro australis*) was reported to have been seen by a reliable bird-observer in a certain valley on the ranges. I was in the vicinity of the place where it was seen, but never saw it. However, there is no reason why this bird should not be in that locality. Again, a member of the local tramping club informed me that he and a scientific friend had seen two Saddle-backs (*Creadion carunculatus*) on these mountains about eight years ago. There are plenty of valleys that have never been thoroughly explored, and I cannot see why the Saddle-back and even the

Huia should not be rediscovered in some of these out-of-the-way places.

It is my intention to spend a few weeks on these ranges next summer to try to settle the question.

Of the introduced birds, perhaps the Song Thrush (*Turdus philomelos*) is the commonest. They have spread almost all over the ranges, and their nests can be found from the bottoms of the gullies to the mountain tops.

Occasionally the Blackbird (*Turdus merula*) will be seen, but not so high up as the Thrush. They are generally about the edge of the bush, very often, I daresay, coming and going between there and the homes of the settlers, of which there are several in nearly every valley, some quite close to the bush. The Hedge Sparrow (*Prunella modularis*), one of the most useful of the introduced birds, is fairly well distributed throughout the ranges, on this side at all events, and the pretty little Redpoll (*Linota rufescens*) can often be seen and heard in most of the valleys. The Goldfinch (*Carduelis carduelis*) does not go far into the bush, usually about the edge on the clearings, where thistles provide it with the food it likes. The Greenfinch (*Chloris chloris*), like the Goldfinch, prefers the edge of the bush and clearings to the heavy bush, although it is seen occasionally right back on the riverbeds of the mountain streams.

Notes on a Visit to the Greater Actaeon Island, South Tasmania

By Dr. W. W. GIBLIN, R.A.O.U., Hobart.

Many years ago the late Colonel W. V. Legge, R.A., F.G.S., Sometime President, R.A.O.U., gave me a copy of the notes he had contributed to the Royal Society of Tasmania on the breeding of some sea birds on the Actæon and adjacent islands.

These notes proved so interesting that it has ever since been my wish to visit this spot. It was not, however, until the early part of this year that the opportunity of doing so occurred.

The present state of bird life on the Greater Actæon, as compared with what obtained when Colonel Legge visited it thirty-seven years ago, is of interest. It serves as a basis in estimating the result of the collection of the eggs and the young of the Mutton Bird. This has been carried out from time to time by parties from Southport and the neighbourhood, who collected eggs and young birds for their own use. I have heard of no "professional" mutton-birding taking place here.

The Actæon Islands, situated at the southern outlet of the D'Entrecasteaux Channel, consist of two islands and surrounding reefs and rocks. The Greater Actæon is nearly a mile in length, its greatest width 300 yards. It really consists of a chain of three islands joined by necks of shingle which must be washed over when the sea is running high. The highest point is not more than 60 feet. There are no trees on the island. The central portion is covered with Barilla bush—a salsolaceous plant —nowhere more than a few feet in height, and forming a dense undergrowth through which it is difficult to walk. Surrounding this is a belt of sandy loam, richly manured with bird-droppings and covered with a luxuriant growth of coarse grass tussocks.

The Little Actæon, about a mile and a half away, is smaller, lower lying, much less accessible owing to the swell, and consequently more favourable for nesting purposes. When Colonel Legge paid his visits (Oct. 31st and Nov. 28th, 1886) he was able to land only on the Greater Actæon, the weather preventing landing on the Little Actæon, My visit later in the season, viz., January 24th, was to the larger island only.

The following species were observed:—

Puffinus tenuirostris. Short-tailed Shearwater (Mutton-Bird). These birds were breeding in every available foot of the loamy belt surrounding the island. The burrows were hidden by the high grass tussocks. It was difficult to walk owing to one's feet constantly sinking through the soft earth into burrows beneath. Several were examined, and in every case found to contain a nestling about the size of a Brown Quail covered with black down. In each case oily fluid was pouring from its mouth, so that the young birds had evidently been well fed. In some burrows we found old birds which, on being turned out, waddled clumsily through the thick tussocks to the edge of the cliff, and then sailed gracefully away. No birds were feeding in the neighbourhood of the island, but some two miles away large numbers had been seen flying both up the Channel and oceanwards as far as one could see. It was impossible to estimate the number of birds nesting, but as every available space was occupied, it is evident that there is no diminution in the number of birds. On Colonel Legge's visit (28th Nov., 1886) he stated "had I not accidentally discovered a 'Mutton Bird' in what I took for a Penguin's nest, I should have left with the impression that there were none on the Island, as not a sign could be seen of any Mutton-Birds flying around. At the north end, where the earth bank above the rocks is steep, and riddled with nest holes, I detected the bird in question at the end of a hole, and pulling her out, found an egg in the nest. I subsequently unearthed half-a-dozen birds from holes round the same part of the island, so that it may be inferred that a small colony was breeding there, although the probabilities were that no very great number of birds would visit the island at that late period."

As breeding is supposed to begin on 24th November, it is evident that the number breeding during the season of 1886 was small compared with the number breeding in a good season. This may have been caused by the burning off of the grass during the breeding season of the previous year, which caused the destruction of much bird life. As no sheep are depastured here, it is difficult to conceive a motive for this wanton act of cruelty.

Gabianus pacificus. Pacific Gull. A large flock of these fine Gulls was flying round the southern point, and probably feeding on the maggots on old kelp, of which there was a pile on the rocks. Their behaviour did not indicate that any of these had young birds on the island, and no old nests were seen.

Larus novæ-hollandiæ. Silver Gull. Several were feeding with the Pacific Gulls, but were not so numerous. There were no signs of their having nested during the present season, so it is evident that the rookery containing fifty nests and upwards at the time of Legge's visit, has been abandoned, probably as a result of the annual collection of eggs.

Circus approximans. Swamp-Harrier. A single bird was seen busily engaged among the Mutton-Birds' warrens. I had no opportunity of seeing what his method of dislodging his victims from their entrenched position was.

Corvus coronoides. Australian Raven. Numbers of Ravens were feeding with the Pacific and Silver Gulls at the southern point of the island.

Eudyptula minor. Little Penguin. The remains of several half-grown Penguins were lying about, but no birds were seen.

A flock of some fifty Starlings (*Sturnus vulgaris*) completed the birds seen on the island.

In his paper, Colonel Legge reports finding the following species, which were not present during my visit:—Orange-breasted Grass-Parrot (*Neophema chrysogastra*); Australian Pipit (*Anthus australis*); Spinebill (*Acanthorhynchus tenuirostris*); and Sooty Oyster-catcher (*Hæmatopus unicolor*).

Of these the Grass-Parrot is by far the most interesting, as its name is associated with this island, since Gould found it there in greater numbers than about Hobart or New Norfolk. It was numerous when Col. Legge paid his visits, and he followed Gould in his belief that it nested on the Actæons, probably in holes in the ground. As the mainland is only a couple of miles distant, and there is no water on the island, it is hard to imagine that these birds would content themselves with dew. Probably they paid only a daily visit to the island for the abundant grass seeds, and nested on the neighbouring coast, where there is an unlimited choice of suitable trees. As my visit was two months later in the season, the absence of this bird does not show that it has given up visiting the Actæons.

Notes on a Trip to Upper Colo, N.S.W.

By J. R. KINGHORN, C.M.Z.S., Zoologist, Australian Museum, Sydney.

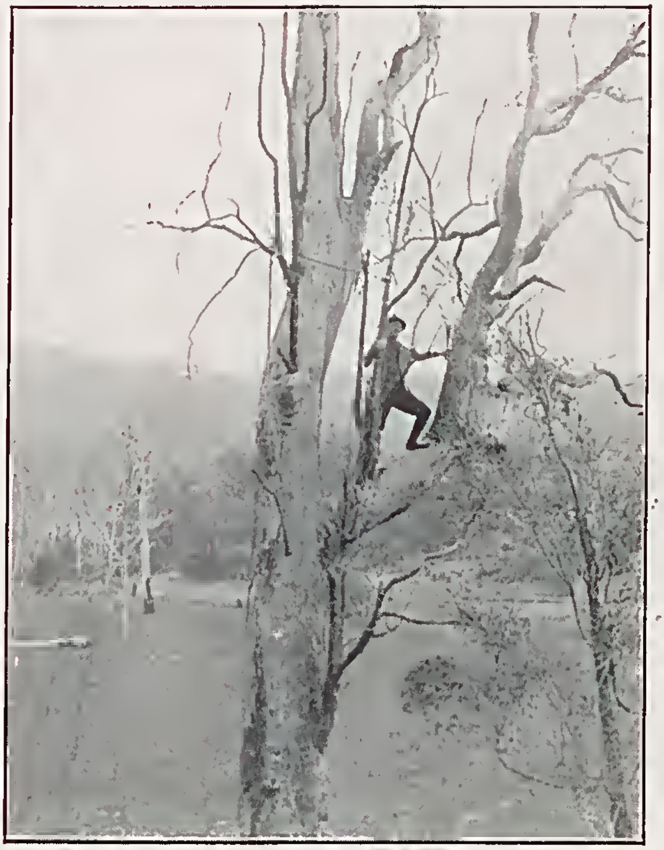
(*By Permission of the Trustees of the Australian Museum.*)

Upper Colo is situated on the Colo River, about fourteen miles above its junction with the Hawkesbury River, and about twenty miles from our starting point, Richmond. The first intimation received at the Museum as to the possibilities of the locality being a valuable collecting area was from Mr. W. W. Thorpe, a member of the scientific staff, who had returned from a trip which extended through that very wild stretch of country between Upper Colo and Putty.

Mr. Thorpe suggested that a well organised trip to the region which he had traversed should reveal many interesting species hitherto supposed to be very rare. As the expense of such an extended trip would be considerable, a short preliminary trip was suggested, so that some estimate could be made as to the advisability of sending a well equipped excursion at a later date. The Museum party consisted of a taxidermist, Mr. J. H. Wright; an assistant, Mr. H. O. Fletcher; and the writer. The organisation being left in my hands, a move was made to get in touch with the Director of the Department of Agriculture, the Principal of the Hawkesbury Agricultural College, and the College farm manager, Mr. Judd, and it was through their generosity that a fine horse and cart, together with full equipment. were lent to us for the eight days during which the trip was made. I am grateful to all with whom I had dealings at the College, for their willing assistance and advice.

Our party left Richmond on October 13th, at midday, crossing the river half an hour later. For six miles the uphill Kurrajong Road was followed, and then we turned northwards along the Comleroy Road. We kept to the ridges for about nine miles, and then dipped suddenly and zigzagged down the side of a mountain, at the bottom of which, situated in a wild and rugged gorge, lay Wheeny Creek.

We arrived at Wheeny about tea-time, and found that a small grassy flat about an acre in extent made a splendid camping-place; so a splash in the cool waters of the creek and an excellent tea refreshed us after a heavy day in the blazing sun. Later in the evening a jacklight excursion was made along the creek and up the gorge; traps were set in the hope of catching small marsupials, while one rock wallaby was secured for our collection. A restless night was spent, mainly through the snorting and stamping of the horse, which though very thirsty, would not drink in such a strange locality either from the creek or from buckets. However, he learnt a lesson by remaining thirsty all night, and for the remainder of the trip he drank at every opportunity. A



Tree at Upper Colo, containing over a dozen nests of the Orange-winged Sittella.
Photo. by J. R. Kinghorn, Esq., C.M.Z.S.

Camp at Wheeny Creek.
Photo. by J. R. Kinghorn, C.M.Z.S.

round of the traps in the morning showed them to be empty, but an interesting few hours were spent climbing the hillsides in search of specimens. Birds were in numbers individually and specifically, the woods resounding with their calls. Bell-Miners (*Manorhina melanophrys*), were apparently everywhere, though few were seen. Magpies (*Gymnorhina tibicen*) carolled and sang in turn, while some young ones in a nest near by were incessant in their cry for more food. Noisy Miners (*Myzantha garrula*) and Grey-crowned Babblers (*Pomatostomus temporalis*) vied with each other as to which could make more noise. Dollar Birds (*Eurystomus orientalis*) and Noisy Friar-birds (*Philemon corniculatus*) joined in the chorus, while thousands of small birds lifted up their voices and sang to the rising sun, the sharp *joe-joe* of the Southern Yellow Robin (*Eopsaltria australis*) being heard above all others. As we rounded a great rock on the side of a cliff our attention was attracted by the twitterings of many birds, which, as we soon discovered, came from the throats of a large flock of Rock-Warblers (*Origma rubricata*).

After spending the whole of Saturday morning scouring the hills, we decided to push on the remaining five miles to our destination, the Colo River, so we climbed out of one gorge into another, and arrived at Upper Colo village or settlement at about three o'clock. Camp was pitched, and we immediately settled down to the first of our five days' hard toil. Upper Colo sits snug on a thousand or so acres of undulating grass land, surrounded by precipitous mountains. To the north the river of crystal-clear water on a bed of white sand, runs east and west at the foot of a cliff, opens out a little opposite the settlement, and then disappears into a gorge about half a mile down stream. A large and deep swamp lies to the south-west, between some hills a few hundred yards from the river, another lies to the east, while a smaller one is situated immediately below the school.

These swamps are surrounded by rushes, and they proved to be a harbour of refuge for Ducks, Shags and wading birds, while Reed Warblers (*Acrocephalus australis*) and Fantail Warblers (*Cisticola exilis*) could be seen in hundreds among the rushes.

Our day's work started at 5 a.m.; the early hours were spent collecting specimens, and the remainder of the daylight hours were devoted to preparing them for the collecting box; but much valuable time was lost through having to do our own cooking, and general camp duties, including attending to the wants of the horse. Sunday was a busy day, for, while Wright and Fletcher prepared specimens collected at Wheeny on Saturday morning, as well as those captured at the Colo during the evening, I did the cooking, and scoured the country in search of subjects for photographs and suitable collecting areas.

Every evening traps were set, and after tea jacklight excursions were made until about ten o'clock, at which hour we were content to call it "a day." The residents of the district told us that Rock Wallabies (*Petrogale penicillata*) had been cleaned out years ago by shooting parties from Richmond and Windsor, such parties including people who would shoot at anything and everything, from a Robin to a domestic cow. We proved to our own satisfaction, with the aid of our jacklight, that these animals were still about, though not in large numbers, and that they did not venture out until well into the night, probably long after the settlers had gone to the land of dreams. This information we kept to ourselves, thereby hoping to save further slaughter. It appears that the possum has been exterminated in this district, as during our many jacklight trips we did not even hear one in the trees. The birds at Upper Colo are in myriads, and the locality could aptly be termed "a bird lover's paradise."

Although we did not visit the country beyond the river, we learned that it contained plenty of kangaroos and wallabies of more than one species, and that some of the gullies about fifteen or twenty miles away were alive with birds and mammals of many kinds. Some of the settlers offered to guide us to these places, but, unfortunately, our time did not allow us to leave Upper Colo. From all accounts it would appear that an extended trip to the country beyond the river, through to Putty or even Singleton, would be well worth the time and expense. During our stay in the district we received many visits from school children, who took much interest in our work, eventually setting out to collect moths and lizards for us in their spare time. A special lecturette was given to them under a large tree at the camp, about twenty of them squatting on logs and on the grass, where Wright and Fletcher were preparing skins, while the writer spoke to them on "The Value of Birds Round the Farm," and "Snakes and Snake Venom."

The five days passed all too quickly, and Friday found us packing up and getting ready for the return journey. The heavy pull over the ranges, and the walking up the steepest grades during the heat of the afternoon, soon told on the party as well as on the horse, and, when seven o'clock found us at Comleroy, and still about nine miles from Richmond, we decided that a halt for the night would be most welcome. Through the generosity of Mr. McMahon we spent the night in one of his barns, and made ourselves very comfortable. Saturday morning saw us up early, making a final sorting and packing before returning to Sydney. Richmond was reached at midday, and a few hours later found us at the Museum, where stock was taken and all the routine work connected with a collecting trip was finalised.

Everything considered, the trip was a very successful one, for, apart from gathering a varied assortment of specimens, we learned much of the country and its fauna. An attempt was made to compile a complete list of the birds seen, but as field glasses did not form part of our equipment, we had to rely on the naked eye.

About one hundred species of birds were listed with certainty, but quite half as many again must remain unrecorded because of their being too far away for definite identification.

We noted with surprise that Sparrows were comparatively rare around the Colo district, probably because they had been driven away by Starlings, which were in large numbers. We also noted that the latter birds did not nest in houses or sheds, but chose the hollow limbs of some dead trees to the east of the settlement, thereby interfering with the nesting sites of many of our useful native birds, not the least among which were Wood-Swallows.

LIST OF BIRDS SEEN BY MESSRS. KINGHORN, FLETCHER, AND WRIGHT.

Coturnix pectoralis. Stubble Quail.—One pair seen running among the thistles and weeds on the right bank of the Colo River.

Geopelia placida. Peaceful Dove.—Numbers were observed at Upper Colo, sometimes in flocks of about half a dozen.

Chalcophaps chrysochlora. Green-wing Pigeon.—One or two pairs were reported as being fairly regular visitors to a certain part of the road about two miles up the river, where they fed on grass seeds.

Phaps chalcoptera. Common Bronzewing. — One pair seen at Wheeny Creek.

Leucosarcia melanoleuca. Wonga Pigeon.—One pair seen at Colo River.

Gallinula tenebrosa. Dusky Moorhen.—Flocks seen swimming on the lagoons behind Upper Colo, and also running through the reeds which grew at the water's edge in a deep creek.

Fulica atra. Coot.—Numbers were on the lagoons at Upper Colo.

Podiceps ruficollis. Little Grebe.—Plentiful on the lagoons at Upper Colo.

Chlidonias leucopareius. Whiskered (Marsh) Tern.—Half a dozen noticed flying over the Colo River.

Erythrogonys cinctus. Red-kneed Dotterel.—About a dozen pairs were seen running about the sand on the river bank at Upper Colo.

Lobibyx novæ-hollandiae. Australian Spurwing Plover.—Flying overhead at Upper Colo.

Erolia acuminata. Sharp-tailed Sandpiper.—A single specimen, a female, was seen running along the edge of the lagoon; it was collected for the Museum.

Burhinus magnirostris. Southern Stone-Curlew.—Judging by their cries, they were in great numbers, though we were not fortunate enough to see any. They may be met almost anywhere between Richmond and Upper Colo.

Notophoyx novæ-hollandiæ. White-faced Heron.—Several specimens were seen on the Hawkesbury River and on some of the dams on the way to Upper Colo, while there were great numbers of them at the latter locality.

Notophoyx pacifica. White-necked Heron.—One pair was seen, and several were heard in the swamps at the back of Upper Colo.

Nycticorax caledonicus. Nankeen Night Heron.—Plentiful, both on the Hawkesbury and Colo Rivers, but most numerous round about the swamps and lagoons at Upper Colo.

Butorides striata. Little Mangrove Heron.—One pair seen on the eastern swamp at Upper Colo.

Anas superciliosa. Grey (Black) Duck.—A flock of about twelve inhabited the eastern swamp at Upper Colo.

Phalacrocorax varius. Pied Cormorant.—Several pairs were seen at Upper Colo.

Phalacrocorax carbo. Black Cormorant.—A few specimens were seen on the Hawkesbury River, and flying overhead at Wheeny Creek. They were plentiful at Upper Colo, where they preferred the western swamp.

Circus approximans. Swamp Harrier.—Only a few birds were seen during the whole trip. Some were hovering over the flats near the river at Richmond, while the others were seen over the flats at Upper Colo.

Astur fasciatus. Australian Goshawk.—Fairly plentiful at every place we visited with the exception of Wheeny Creek.

Astur cirrocephalus. Collared Sparrowhawk.—Plentiful on the flat country around Richmond and on the ridges along the Comleroy road, but only about two pairs were seen at Upper Colo.

Uroaëtus audax. Wedge-tail Eagle.—We did not count them, but they could be seen hovering high in the air almost any time we cared to look for them at any stage of the journey.

Haliastur sphenurus. Whistling Eagle.—Flying overhead at Richmond and Comleroy.

Elanus axillaris. Australian Black-shouldered Kite.—Several pairs were seen hovering over and diving into the fields at Upper Colo.

Tyto alba. Barn Owl.—A few were heard at night at Upper Colo.

Ninox boobook. Boobook Owl.—Heard at night at Upper Colo.

Glossopsitta concinna. Musk Lorikeet.—Several specimens which we considered to be this species flew quickly overhead at Upper Colo.

Calyptorhynchus funereus. Black Cockatoo.—One pair was seen by Mr. Wright in the thick scrub and forest at Wheeny Creek.

Kakatoë galerita. White Cockatoo.—A flock containing between twenty and thirty birds flew over our camp at Upper Colo and settled in a corn patch and in some trees a few hundred yards along the river bank.

Aprosmictus scapularis. King Parrot.—While these birds were not plentiful during our visit, a pair was seen in the bush along the river at Upper Colo. The children of the district regard this species as being quite common.

Platycercus elegans. Crimson Rosella.—One pair seen at Upper Colo.

Platycercus eximius. Eastern Rosella.—In great numbers throughout the country.

Lathamus discolor. Swift Parrot.—A few birds which we thought to be this species were seen flying about in the bush, but we were never able to get near enough to confirm our identification.

Podargus strigoides. Tawny Frogmouth.—Fairly numerous around Upper Colo. A pair, which we did not attempt to disturb in any way, lived in a river oak which shaded our tent; we noted that the female spent most of her time sitting on her nest.

Eurystomus orientalis. Dollar Bird.—Seen at several places during our journey. They were very plentiful at Upper Colo, where we found them to be nesting high up in some dead trees to the east of the village.

Alcyone azurea. Azure Kingfisher.—A pair of these birds spent most of the daylight hours hunting for food along the bank of the river opposite our camp.

Dacelo gigas. Laughing Kookaburra.—Plentiful throughout the country.

Halcyon sanctus. Sacred Kingfisher.—Fairly plentiful wherever we went.

Merops ornatus. Rainbow-bird (Bee-eater).—Many birds were seen during the journey from Richmond, as well as at Wheeny Creek and Upper Colo. We spent some time watching them tunnelling in the banks of the Hawkesbury and Colo Rivers.

Cuculus pallidus. Pallid Cuckoo.—Two pairs were seen at Upper Colo.

Cacomantis flabelliformis. Fantail Cuckoo.—Several pair were seen at Wheeny Creek and Upper Colo.

Lamprococcyx plagosus. Green Bronze Cuckoo.—Fairly numerous at Upper Colo.

Centropus phasianinus. Pheasant-Coucal.—At least one pair was heard drumming in the long grass round the edge of the western swamp at Upper Colo, but we were unfortunate in not catching sight of a single specimen.

Hirundo neoxena. Welcome Swallow.—Widely distributed throughout the country.

Hylochelidon ariel. Fairy Martin.—Widely distributed, though not so numerous as the Swallow.

Microeca fascinans. Jacky Winter.—Met with everywhere we went, and appeared to be in great numbers at Wheeny Creek and Upper Colo.

Petroica phoenicea. Flame Robin.—Numbers were seen sitting in the briars and on the fences bounding the roads from the Hawkesbury River through Comleroy to the Colo, though at the latter locality there were comparatively few of them, perhaps less than half a dozen.

Petroica goodenovii. Red-capped Robin.—Plentiful around Richmond and all the way to Upper Colo.

Melanodryas cucullata. Hooden Robin.—Only one pair seen on the Comleroy Road.

Gerygone olivacea. White-throated Warbler.—Fairly plentiful throughout the journey, there being large numbers of them at Upper Colo and the surrounding districts.

Eopsaltria australis. Southern Yellow Robin.—Several pairs were seen at Richmond and during the journey to the Colo River. They were very plentiful in the rugged country at Wheeny Creek, and in the thick scrubs surrounding Upper Colo.

Pachycephala rufiventris. Rufous Whistler.—Heard several times singing in the trees during the journey, and several pairs were seen along the banks of Wheeny Creek. At Upper Colo they were numerous, and their beautiful song could be heard from daylight till dark as they passed up and down the river near our camp.

Rhipidura leucophyrs. Willy Wagtail (Pied Fantail).—Common everywhere, more especially round the farms.

Rhipidura flabellifera. Grey Fantail.—Very common at Upper Colo; only a few were seen during the trip from Richmond.

Seisura inquieta. Restless Flycatcher (Scissors Grinder).—Not so numerous as the Wagtail.

Graucalus mentalis. Little Cuckoo-Shrike.—Three or four pairs seen on the highlands in the open bush between Comleroy and Wheeny Creek.

Pomatostomus temporalis. Grey-crowned Babbler.—Small flocks were seen at Wheeny Creek.

Oreocincla lunulata. Australian Ground Thrush.—Several pairs were seen at Wheeny Creek.

Epthianura albifrons. Banded Tang (White-fronted Chat).—Two pairs seen flying overhead during the journey from the Hawkesbury to Comleroy.

Acrocephalus australis. Australian Reed-Warbler.—In great numbers, and nesting in the reeds well out in the large swamps around Upper Colo.

Cisticola exilis. Fantail Warbler.—I was uncertain of the identity of these little birds when scouting round the swamps at Upper Colo, but since comparing my notes with skins in the Museum, I feel sure that they should be referred to this species. There must have been quite eight pairs in one small area.

Origma rubricata. Rock Warbler.—About twenty of these birds were seen in a flock, hopping over the rocks in a small gorge a few hundred yards east of the Wheeny Creek camping area. Other smaller flocks were seen on the opposite side of the gorge, and a few pairs noted at Upper Colo. The birds were so plentiful at Wheeny Creek that we thought it would be an easy matter to find a nest or two, but the three of us searched likely places for hours without avail.

Acanthiza nana. Little Thornbill.—Fairly plentiful throughout the country.

Geobasileus chrysorrhous. Yellow-tailed Thornbill.—Many specimens were seen during our trip, though they were nowhere so plentiful as along the lower Kurrajong and the Comleroy Roads.

Malurus cyaneus. Superb Blue Wren.—Fairly plentiful wherever we went.

Artamus superciliosus. White-browed Wood-Swallow.—We observed hundreds of them in and around the orange orchards along the Comleroy Road, while a few were seen in the bush towards Wheeny Creek.

Artamus personatus. Masked Wood-Swallow.—Less numerous than, but seen in company with, the preceding species at Comleroy.

Artamus cyanopterus. Dusky Wood-Swallow.—Seen circling about some large dead trees at Upper Colo, where they were nesting.

Colluricincla harmonica. Grey Shrike-Thrush.—Several pairs seen, and many heard during the journey out from Richmond. They were most numerous in the scrub country around Upper Colo.

Grallina cyanoleuca. Magpie-Lark.—In large numbers all over the country.

Neositta chrysoptera. Orange-winged Sittella.—In large numbers at Upper Colo. These birds were nesting in many of the larger dead trees round the district; one tree alone, judging by the number of birds in it, must have contained over a dozen nests.

Climacteris picumna. Brown Tree-creeper.—Numbers of these birds were seen at all stages of the journey, the majority being in the trees along the Kurrajong road.

Zosterops lateralis. Silver-eye.—Very common throughout the country, more especially in the orcharding districts.

Dicæum hirundinaceum. Mistletoe-bird.—Appeared to be rare; a few specimens were seen near Wheeny Creek and at Upper Colo.

Pardalotus punctatus. Spotted Pardalote.—Plentiful throughout the country. One nest containing young was situated in a small bank of earth in the school ground at Upper Colo.

Myzomela sanguineolenta. Scarlet Honeyeater.—Very common along the Colo River and the surrounding country, more especially along the neighbouring creeks. Its quaint song could be heard in the tops of the willows, from morning till night.

Acanthorhynchus tenuirostris. Eastern Spinebill.—Rare in the parts visited.

Meliphaga lewinii. Yellow-eared Honeyeater.—A few specimens seen at Wheeny Creek and Upper Colo.

Meliphaga virescens. Singing Honeyeater.—Many heard, but only a few seen flashing from tree to tree in the thick scrub at Upper Colo.

Meliphaga chrysops. Yellow-faced Honeyeater.—Several specimens seen in the scrub behind Upper Colo.

Meliphaga spp.—Several other species of honeyeaters were seen, but not definitely identified.

Manorhina melanophrys. Bell-Miner.—Only one pair seen, at Wheeny Creek, but the beautiful clear bell-like notes of others could be heard almost throughout the journey. There must have been hundreds of them round about Wheeny. The Kurrajong is noted for these birds.

Myzantha garrula. Noisy Miner.—A common bird in the districts visited, especially Wheeny Creek.

Philemon corniculatus. Noisy Friar-bird.—Common in the Kurrajong, Comleroy, Wheeny Creek and Colo districts. It is considered by the orchardists to be a great pest.

Anthus australis. Australian Pipit.—Common in the Richmond and Comleroy district, and on the flats at Upper Colo.

Zonaeginthus guttatus. Diamond Firetail (Spotted-sided Finch).—Hundreds of these birds were seen during the journey through North Richmond and the Comleroy districts, as well as at Upper Colo, where they were nesting.

Ægintha temporalis. Red-browed Firetail.—Seen in small flocks everywhere we went; they were nesting at Upper Colo.

Struthidea cinerea. Apostle-bird.—Numbers were seen at Wheeny Creek.

Ptilonorhynchus violaceus. Satin Bower-bird.—Seen at Wheeny Creek.

Ailurœdus crassirostris. Green Cat-bird.—Several specimens were seen at Wheeny Creek.

Corvus. Australian Raven and Australian Crow.—We were never quite certain of the specific identity of these birds. Hundreds were seen during the trip.

Strepera graculina. Pied Bell-Magpie (Currawong).—Thinly distributed through the open country beyond Comleroy, but more numerous round about Wheeny Creek. Several specimens were seen at Upper Colo.

Cracticus torquatus. Grey Butcher-bird.—Fairly common in most parts, but more numerous along the Colo River than elsewhere.

Gymnorhina tibicen. Black-backed Piper (Magpie).—Common everywhere. A pair were nesting in a high tree above our camp at Wheeny Creek, and many young birds were learning to fly at Upper Colo.

Gymnorhina hypoleuca. White-backed Piper (Magpie).—Mr. Wright saw one pair at Upper Colo. They were shy and, although he saw them on three occasions, he was not able to get very near to them.

A Quaint Bird of New Zealand—The Kakapo

By ALEC. F. O'DONOGHUE, R.A.O.U., Blenheim, N.Z.

Of the many quaint and wonderful birds inhabiting the dense sub-alpine forests and marshy lowlands of the West Coast of the South Island of New Zealand, the Kakapo (*Stringops haproptilus*) stands out pre-eminently as a striking example of the probability of extraordinary changes having been wrought in the history of bird life.

The Kakapo is attached to the order *Psittaciformes,* which claims our various Parrots, and is the sole member of the family *Stringopidae.* It is a bird of rather bulky proportions, considerably larger than the White Cockatoo of Australia, and resembling in form the heavy erect set of an Owl, with short powerful legs and heavy clawed feet Such structural lines would not, as a rule, inspire one with the hope that beauty could lend itself lavishly in the ultimate adornment, but, strange to say, the Kakapo is arrayed in a most wonderful and beautiful plumage, a fact all the more bewildering when one realises that the bird is nocturnal in its habits. The predominant shade in this extravagant plumage forms a rich background of pale moss green, flecked and spangled with gold, relieved on the back and wings with sections of warm brown markings. The wings are heavy and in proportion to the size of the body, and a casual observer would undoubtedly conclude that the bird was possessed of reasonable powers of flight, yet it ranks among our many flightless birds; the muscles of the wings being apparently too weak to render them of any use. Even when attacked or hurrying off from some enemy, only the slightest effort is made to bring the large useless wings into action, and consequently it falls an easy prey to the hunter's dog. Like others of our nocturnal birds, the Kakapo makes its hiding place and nesting place in the ground among the roots of trees, or in the cavities of rocks, where it conceals itself practically the whole day long. Occasionally, however, it ventures out in the day time, and may sometimes be discovered in the open basking in the sunshine; when approached it will seldom make any serious attempt to escape, but when captured it defends itself with claws and beak. Once a captive, it soon becomes a great pet, and ere many days are passed its degree of intelligence becomes very pronounced, in some cases quite equal to that of an ordinary dog.

Hutton and Drummond, in their work entitled "The Animals of New Zealand," write of this bird as follows:—"Size, appearance, and habits of life, combine to make the Kakapo one of the most remarkable birds in the Dominion. Its intelligence commands respect, and its helplessness, sympathy; while its genial nature endears it to all who know it well. It repays kindness with gratitude, is as affectionate as a dog, and as playful as a kitten."

Though a Parrot, I have never known the Kakapo to learn to talk; its brilliant intellect works in other directions entirely, for it never tires of learning new and difficult tricks. In fact, it demands special attention from one whom it makes a friend. A Kakapo in a bush camp is the life and soul of the lonely habitation, and the wonderful and original tricks performed by this entertainer are beyond description. On one occasion, when exploring the heights of that wonderful rugged cape, located at the mouth of the Waitaha River, in Westland, known as Bold Head, my party discovered a large male Kakapo basking in the warm sand. It was captured after a short chase, and although it set up a defence, it was perfectly subdued within half an hour, and began to play with its captors—something in the nature of cats' play. During the three days it was kept in camp, it was persistently looking for excitement and play. The bird is usually referred to by the back country settlers as the "Ground Parrot," but being a splendid climber it frequently finds its way into the tops of the medium sized shrubs and trees. When climbing, much use is made of the powerful beak; a half right and left method is adopted.

The food of this quaint bird consists of grasses, berries, seeds, leaves, etc., and having secured a good supply during the night and early hours of the morning, it takes off to its secluded resting place, where the daylight hours are usually spent.

As a general rule birds of nocturnal habits are feathered in some dull, unattractive shading, usually greys and browns, but the Kakapo is, among the nocturnal birds of New Zealand, the one striking exception to this rule. Does it not seem something of a contradiction in the great scheme of Nature, that so brilliant a plumage should be called upon to live almost in perpetual exclusion from the light of day? The case of the Kakapo is one of those striking examples of the possibility of extraordinary changes having been worked in the life of the bird. Its brilliant plumage, for instance, immediately suggests that there was a time in the history of the bird when its habits were diurnal, when it loved to bask and gambol in the bright glistening sunshine, when the gorgeous plumage rivalled that of all other birds in sending forth a dazzling radiation. Another somewhat convincing aspect which forces us to the conclusion that a wonderful change has taken place, lies in the fact that the shade of the green plumage is identical with the predominant shade of the mossy vales in which the bird delights to feed, suggesting a protective coloration. Hence, if it were originally destined for nocturnal habits, protective coloration in so marked a degree would not be necessary. But why should such a radical change have taken place?

The Kakapo is fairly plentiful throughout the South Island, but seems to honour the West Coast as its happiest hunting grounds. From the wild bush-clad Sounds in the far South right up to the downs and mountains of the Sunny North, in the Province of Nelson, colonies of the Kakapo are to be found.

When travelling through the Buller Gorge recently I made the acquaintance of a reliable observer, who told me of their large colonies existing in certain mountain ranges surrounding the famous waterway.

Parrots as a rule are not noted for dignity and workmanship in the matter of nest building, and in this respect the Kakapo is no exception. The nest is a rough excavation, with only the faintest attempt at linings and comfort. The nest usually contains three or four white eggs, about two inches in length. "Kakapo" is the name given to the bird by the Maoris, and means "Night Parrot." As this name has been handed down for many generations, it would seem that at least for many centuries past, this bird has been possessed of nocturnal habits, in all probability was always a nocturnal bird, but still the circumstantial evidence mentioned above is quite sufficient to lead one to the belief that a wonderful change has come over the bird during some ancient period. It is difficult at times to reconcile existing conditions with the scientific theories which tell us that all flightless birds of to-day were at one time or other, away back in the ancient times of their ancestors, possessed of full powers of flight; but no such difficulty exists in the case of the Kakapo. Here we have a bird feathered in every detail like a bird of flight, the rounded full-sized tail, the large, well proportioned wings, the short thick legs, and heavy clawed feet, all tell us that such a bird was never created to work out its destiny on the floor of the forest. In fact, these outstanding features alone immediately force us to the conclusion that this bird was at one time a flyer, and leave us bewildered at the thought that to-day that power has passed. And why? Is it because this beautiful bird found no charm in opening its wings, and floating from tree to tree, from hilltop to hilltop, and that it preferred the heavy drudgery of the cold, inhospitable forest floor, to the gay life of the bird on the wing? All these things must remain unanswered, and we bow to the mighty powers of evolution that leave us pondering over the extraordinary mysteries of Nature, whether they are of regeneration, or as in the case of the bird under notice, degeneration.

The Turquoise Parrot on the Nullarbor Plain.——In view of the great scarcity of the Turquoise Parrot (*Neophema pulchella*), any note as to present-day habitat is of interest. When representatives of the Australian Museum were at Ooldea, in 1921, they secured one young male of this species. Mr. G. A. Heumann noted a pair in the same district a little later. In answer to inquiry, Mr. A. Bolan, Stationmaster at Ooldea, who is a keen naturalist, sends me the following note:—"Regarding the Grass Parrot, yes, I have noted a bird answering description—small, living in grass; greenish back, blue face, yellowish underneath. I noticed one last year in a donga out on the Nullarbor Plain. I remember stopping and having a good look, as he was so pretty."—A. S. LE SOUEF, C.M.Z.S., Taronga Park, Sydney.

Wild Ducks of South-eastern New South Wales

By H. V. EDWARDS, R.A.O.U., Bega, N.S.W.

Three species of Wild Duck (exclusive of the "Wood Duck," or Maned Goose, also a local species) are common in the Southern Monaro district in any season, but although they may occur in small numbers irrespective of the season, certain Ducks resort to that quarter in numbers, as a rule, only in exceptionally wet years.

The local varieties are the Black (or Grey) Duck, Grey Teal, the handsome Chestnut-breasted Shelduck, or "Mountain Duck" —fast, alas, becoming scarce, owing probably to the depredations of foxes—and the Musk Duck. The Chestnut-breasted Teal occurs occasionally, but is far commoner in the coastal districts below.

Now for the visitors. During one exceptionally wet year I observed on a large surface pool, in company with the three local species first named, Pink-eared Ducks, Shovelers, Whistling Tree-Ducks, and White-eyed Ducks—the latter being known locally as "Red Ducks," while the rare Freckled Duck might be seen at times feeding and flying in company with Grey (Black) Ducks, with which it seemed to be on amicable terms. Shovelers in particular came in enormous flocks, drought-driven, probably, from some less favoured part of Australia.

Out of one flock of Shovelers no less than nine birds fell to a single shot from a long single-barrelled "duck gun," so densely did the birds pack together in some instances. During one exceptionally good season on Monaro, when duck food was plentiful, I observed a very large Duck swimming among a flock of Black Duck of full average size. I shot this bird, which proved to be a Black Duck of extraordinary size.

The Magpie Goose is an occasional but rare visitor to Monaro. The Pink-eared Ducks keep mostly to the lakes and surface pools, being rarely seen on the rivers.

The curious Musk Duck—most retiring in habit—occurs mostly in secluded pools or long, still reaches of the rivers, or in the larger lakes. In the coastal districts immediately below the Monaro highlands, this Duck is becoming rare, owing to the draining of many lagoons and swamps, which in earlier years gave this bird sanctuary. Some years ago, however, in a large swamp near Tilba Tilba, on the South Coast of New South Wales, I observed several pairs of the Musk Duck. The eggs, very rounded in shape, and, I believe, only two in number, were taken occasionally.

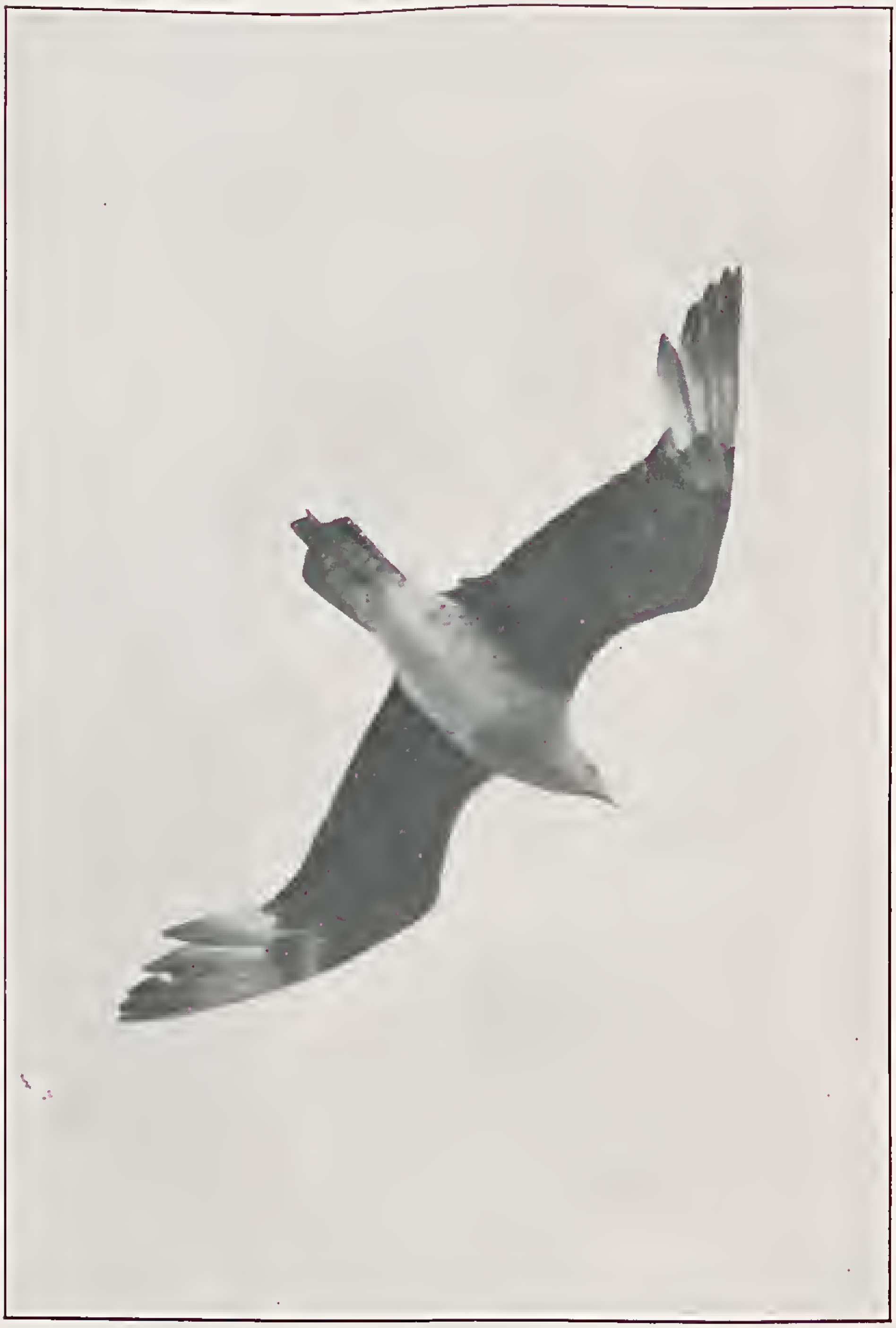
The Grey Teal often nested on Monaro, in the shelter of large tussocks on the margins of rivers, a site much exposed to visitation by foxes, which constantly prowl along the banks. One nest discovered by the writer in June contained ten eggs, pale cream-colour in tint, almost hidden in an envelope or cushion of soft drab-grey down. When the sitting bird was absent in quest of food some down was invariably drawn over a small opening in the cushion, so that the eggs might escape the keen eyes of Crows, Hawks, and other avian enemies. But from the keen-scented fox this device would avail nothing.

Although the Sheldrake still occurs on Monaro, the "Mountain Duck" is growing rarer year by year in that quarter. In former years I have counted thirty or more of these regal birds—the burnished green of their wing coverts flashing in the sun—grouped about springs on the wide, black-soil plains of Monaro. The young, I think, are brought early to the ground from the nesting hollows, and thus become an easy prey of foxes. The "Red Duck," Shoveler, Pink-eared Duck and Whistling Tree-Duck never—so far as I am aware—nest on the Monaro highlands. The "Wood Duck" (Maned Goose), though still common, is not so numerous there as in earlier years. Somewhere about the middle eighties of last century I observed these birds in great flocks on damp green levels about Gelantipy Station, North Gippsland, Victoria, one or more birds, after the habit of Geese, when in flocks, standing sentry on elevated ground near the assemblage of silvery-grey birds. The flocks occurred among timber, and at a considerable distance from any permanent water.

That most destructive and perfectly useless animal, the European fox, is playing havoc annually among the young of wild Ducks, preying also on their eggs and upon the adult birds, which latter are often successfully stalked by this cunning marauder. It is high time, in the opinion of the writer, that a price should be set by the Legislatures of the States upon the scalps of foxes, which may be bracketed with the domestic cat gone wild as being the two most destructive agencies to which many of our most useful insectivorous birds are now exposed.

The Garganey Teal (*Querquedula querquedula*).—A pair of these beautiful birds, kindly lent by Mr. Wm. Shaw, was exhibited by me at the Field Naturalists' Club of Victoria in March, 1889. The birds were obtained at Lake Connewarre, near Geelong. Subsequently I noticed a similar specimen in the National Museum, Melbourne. In recalling the matter recently to the Curator, Mr. J. A. Kershaw, F.E.S., he was good enough to show me the specimen which is mounted. It was presented by Mr. Chas. Hooper on 3/10/81, and was obtained at Lake Colac. In connection with the preparation of the Check-list, it is interesting to find that three specimens of this wandering species have been collected in a small State like Victoria, the inference being that others must occur occasionally in various parts of Australia.—A. J. CAMPBELL, H.F.A.O.U., Box Hill, Victoria.

NATIONAL MUSEUM OF MELBOURNE



A Flight Picture of the Arctic Skua (*Stercorarius parasiticus*).

Photo by K. A. Hindwood, R.A.O U.

Camera Craft

The Arctic Skua.—While on a holiday trip recently I availed myself of the opportunity to study the Arctic Skua (*Stercorarius parasiticus*) from the deck of s.s. Macquarie, a small coastal steamer travelling between Sydney and Port Macquarie, a distance of about 280 miles north. The photograph herewith depicts the two projecting central tail feathers, also the mottled and barred brown and white plumage; one of the two phases of this dimorphic bird. Although rather heavy in build and ungainly in flight, when compared with other sea birds, the Arctic Skua is not without that beauty of form which is characteristic to all birds whose food is secured wholly or partly from the sea. The Arctic Skua is found all along the eastern coast of Australia, but breeds in Siberia, hence it will be seen that it is a strong flier and a great traveller. Its food consists mainly of fish, also of refuse thrown overboard from the many steamers which travel up and down the coast; the fish are secured mainly by harassing other birds until they disgorge their catch.—KEITH A. HINDWOOD, R.A.O.U., Willoughby, N.S.W.

Correspondence

WHITE'S JOURNAL OF A VOYAGE TO NEW SOUTH WALES.

To the Editors of *The Emu.*

Sirs,—I am much interested to learn from the letters of Messrs. Mathews and Waite, published in the last number of *The Emu,* that I was correct in my surmise that the editor of the above-named work was Thomas Wilson, and that various authorities, including Swainson, Sherborn and Mr. Waite, had previously concluded that Shaw was the author of the scientific names and descriptions given therein. I can only state that my conclusions were arrived at without knowledge of these facts, and I regret the apparent lack of caution in the abstract which Mr. Waite quotes, in which I said that the scientific names had *always* been quoted as of White. It is a difficult task to compress an account of a paper, even a brief one, into fifty words, and it leaves no room for qualifying phrases such as "as far as the author is aware."

In common with many other students of Australian birds, I owe much of my knowledge of the early literature of the subject to Mr. Mathews' great work, and since reading his letter I have looked up his references to White's Journal to see if he had ever stated, or even hinted there, that Shaw and not White was probably the author of the names. I cannot find anything of the sort. On page 59 of Vol. VI. of *The Birds of Australia,* we read:—"In the *Journal of a Voyage to New South Wales,* published in 1790, White gave figures and descriptions of new or rare birds and to these attached Latin names." On page 470 of the same volume he writes:—"White, in the 'Journal Voyage New South Wales,' also gave a plate opposite p. 263, and also selected the same vernacular name [as that given in Phillip's Voyage], but added a Latin diagnosis and gave a Latin name, *Psittacus discolor.*" On page 250 of Vol. I. we find:—"White described *Fulica alba,* and gave a figure," and on page 288 of Vol. VIII.:—"This common species was figured by White."

As regards the quotation of the names of Shaw and Nodder as the authors of names given in the "Naturalists' Miscellany," I believe this usage was begun by Mr. Mathews, and that previously it had been customary to quote Shaw only as the author. Mr. Mathews states that he does this because "in the dedications both these names are included." I pointed out, however, that on the title-page of a volume in my possession the words "by G. Shaw, M.D., F.R.S.; the Figures by F. P. Nodder, Botanic Painter to Her Majesty," occur. Whether such a title page is rare or is found in most volumes, I do not know—we in Australia are at a great disadvantage in such matters. It occurs only in the first volume of my set.

Since Mr. Mathews in the last sentence of his letter advocates the quoting of "the name on the title page of the work," he will surely now revert to the name of Shaw alone as the author of "The Naturalists' Miscellany," even though the author and illustrator both attach their names to the dedication of the first volume to the Queen, and of later volumes to other eminent persons.—Yours, etc.,

W. B. ALEXANDER.

Prickly Pear Laboratory,
Sherwood, Queensland, July 15, 1924.

Postscript.—Since writing the above letter, I have noted that in "The Birds of Australia," Vol. V., p. 45, Mr. Mathews wrote: "Almost simultaneously was published in the 'Journal Voyage New South Wales,' by White, p. 250, a description of 'The White Hawk (*Falco albus*),' and this was accompanied by a coloured figure, which appears to be the first published figure of this bird. White's account admits Shaw's aid when doing the birds." I was incorrect, therefore, in stating that Mr. Mathews had given no hint that the descriptions in White's Journal were by Shaw, but this statement is not accurate, since it was not White, but the editor, Wilson, who "admitted Shaw's aid."—W.B.A. (21/7/24).

Stray Feathers.

Efficiency of Camouflage.—In connection with the interesting note of Mr. R. T. Littlejohns in the April issue of *The Emu* under the heading of "The Efficiency of Camouflage," may I be permitted to state that I have found one or two forms of simple camouflage to work satisfactorily where it was necessary to photograph shy birds, and that fairly good pictures have been secured as a result. For instance, when I commenced the photography of birds about three years ago, I used a covering made of khaki cloth, blotched with ink and decorated with green linen, into which I fitted the camera, a lens hole being left, of course. This proved satisfactory for most of the smaller kinds of birds I attempted to photograph, and also served to keep out any light that might otherwise have found its way to the plate through long exposure of the camera in the bright sunlight. After a time I effected a little better disguise by tying leaves and grass to the tripod legs, and almost turning the whole outfit into a bush. The success of this can be gauged from the fact that the birds often perched on top of it instead of on the point where I desired them. Until I camouflaged the camera in this way I achieved no success with such birds as the Tang (*Epthianura*) and the Pipit or Ground Lark, and I spent many weary hours waiting for the birds to return to their nests. By painting the tripod in such a manner that it harmonised with the surroundings, particularly bushes and trees with the sunlight shining through in patches, I have had a fair measure of success among certain birds, but in the tree tops I discard the tripod and rope the camera to the branches or build a small structure to carry it quite free from vibration. While I have not gone into the more elaborate forms of camouflage, such as are used in other parts of the world, where men make bird photography a profession, I have employed for the purpose of photographing Banded Plovers a small hiding tent, constructed of bags, with which I achieved a certain amount of success. The tent is about 4ft. 6in. long, 3ft. high, and a similar measurement in width, with the opening at one end and at the opposite end two holes, one for the lens of the camera and the other for observation purposes. This looks very conspicuous out in an open field where the Plover usually nest, and one would imagine that not a bird would come within miles of it, but I found that the birds grew accustomed to it very quickly, and no difficulty was experienced in picturing them at the nest. On the sides of rocky hills, where the Ground-bird (*Cinclosoma*) nests, I have occasionally placed the camera close to the ground without the tripod among a heap of stones, but the Ground-bird is an exceedingly shy species, and no success has yet come my way. I am inclined to imagine that its moving reflection in the lens of the camera—a conclusion suggested by Mr. Littlejohns—has been responsible for my failure to secure its picture. — M. S. R. SHARLAND, R.A.O.U., Hobart.

Is There any Reasonable Limit to the Ability or the Intelligence of Australia's Bower-birds?—It is not to be wondered at, perhaps, that the mating impulse causes birds generally to display considerable skill in making nests for their eggs and young; but what is to be said of birds which, quite independently of that primal impulse, and with the beak alone, wedge sticks and grasses into playhouses in a fashion that would severely tax the skill of ten human fingers? And now we have to credit a Bower-bird with being not only a house-builder, but a house-painter. Whether this painting business is at all general seems doubtful. I have examined many bowers of the Satin-bird, but had no evidence of it until recently, when it was brought to notice by Mr. E. Nubling, R.A.O.U., of Sydney, and supported by a bushman, who told me he noted the same thing in a South Coast district many years ago. In one bower, observed by Mr. Nubling in the National Park, the whole of the inside wall was painted. That is to say, the aesthetic-minded bird had secured a vegetable dye of some kind, carried it to the bower, and laboriously blackened every one of those hundreds of sticks, from top to bottom. The dye, drying flat, resembled soot or the aftermath of fire, and superficial observation would have suggested that the sticks were burnt, had it not been that only the inside of the walls was thus treated. We saw some of this black substance in two bowers on Sunday last, but by that time rain had washed off the greater part of the curious decoration. —A. H. CHISHOLM, C.F.A.O.U., in Sydney *Daily Telegraph.*

* * *

Breeding Plumage of Birds.—At the recent congress of the R.A.O.U., in Hobart, the question was asked, "Was the nuptial dress acquired only at the moult, or did the bird's feathers change in colour at the breeding season?" The opinion was expressed that, though the change did, as a rule, occur at the moult, nevertheless feathers sometimes become brighter in hue owing to the stimulus of the breeding season. The latter idea seemed to me untenable for physiological reasons, but, being by no means sure of my ground, I refrained from comment. It would seem, however, fully grown feathers being dead things, having no organic connection with the bird, and having the nutritive pulp capsules dry and empty, cannot be in any way influenced by the vital processes of the animal. Apart, therefore, from such things as the rubbing off of dull edges exposing brighter colours beneath, as in the black throat of a House Sparrow, and such things as extra care in preening, etc., I am inclined to think that no change in the colour of mature feathers ever takes place. In this connection the writer of the article in *The Encyclopedia Brittanica* says:—"According to some authorities, however, some birds acquire a change of colour without the moult by ascent of pigment from the base of the feather. The black head assumed by many Gulls, in, spring, is, for example, said to be gained in this way. There is, however, no good evidence in support of the contention, but the whole structure of the feather is against such change taking place."—(Dr.) E. Murray Anderson, R.A.O.U., "Raggal," Clare-street, Hobart.

*　　*　　*

Fluctuations in Bird-Life.—Much has been written in *The Emu* of late concerning possible causes of decrease among various species of Australian birds, particularly Parrots. Mr. A. J. Campbell is standing four-square against domestic cats gone wild. He dealt with the subject in January (*Emu*, Vol. XXIII., p. 175), and again in April (*Ibid*, p. 264, as a footnote to Whitlock's account of the search for the Night-Parrot). I agree entirely with our veteran as to the menace to bird-life created by these cats, and support his proposition for the appointment of a committee to report on the matter. But why only the cat menace? Why not examine the subject of bird conservation generally in relation to Australian progress, embracing at the same time Mr. E. Ashby's helpful proposals in relation to fauna and flora reserves? Indeed, should we not have a standing committee to watch this matter? Mr. Ashby (also writing in *The Emu*) differs from Mr. Campbell as to the primary causes of decimation of certain species, his idea being that encroachment of man is the chief factor and that killing by man and destruction by cats, foxes, rats, etc., "do not seriously count." Personally, while agreeing that direct human competition is serious, I consider (speaking from experience in Queensland), that the damage done by the factors cited has been gravely underestimated. Certainly it is possible, as the same writer suggests, that representatives of some species, supposedly very rare, may have escaped to localities undisturbed by man. This point, however, either as a possibility or an assurance, is not one to inspire confidence so much as zeal—zeal for examining and gripping the whole subject. So I suggest again that the R.A.O.U. (with the Check List adjusted) make a more definite attempt at this work, for the guidance of governments and public, to say nothing of bird-students generally. It is a many-sided subject, this question of fluctuation in our bird-population. When I discussed it with Mr. H. L. White some years ago (chiefly in relation to the *Psittacidae*), he suggested that the outlook for the ground Parrots was almost hopeless. Settlement of the country, he had noted, seemed to affect some species and not others. The Red-backed Parrot was cited as an example. It and the Budgerigah have greatly increased in the neighbourhood of "Belltrees" (Scone, N.S.W.), while other related species are dying out rapidly. It seemed to Mr. White that stocking of the country and bush fires were largely responsible, but he was unable to say why these factors did not affect all species of grass-feeders similarly, unless it was that certain seeds necessary to certain species had been burnt or eaten out. He added that the Magpie had increased wonderfully near "Belltrees," while the Butcher-Bird, a near relative, had almost disappeared, though very plentiful thirty years ago. Curiously enough, the late Mr. E. J. Banfield encountered a similar problem at Dunk Island. On that sanctuary, where the competition or interference of man was very slight, he found that some species of birds increased noticeably, while others (for no apparent reason) fell away alarmingly. I do not consider that this strange fluctuation is satisfactorily explained by the suggestion (*vide Emu*, Vol. XXIII., p. 295), that various species have "disappeared into the great unpeopled spaces of this sparsely-populated continent." The point has been made previously, and it has not been greatly strengthened by the finding of a few "lost" birds here and there. C. H. Jerrard's discovery of the Paradise Parrot only slightly eased the tension in regard to this rare bird. And the shooting of a solitary Turquoise Parrot in South Queensland (not New South Wales) by the Wilkins expedition, certainly does not indicate that numbers of these birds exist. Yet it is only a generation ago that the Turquoise and Paradise Parrots were quite plentiful. — A. H. CHISHOLM, C.F.A.O.U., Sydney.

* * *

Tasmanian Migrants in Summer of 1923-4.—Only two small parties of Spinetail Swifts (*Hirundapus caudacuta*) were noted on the N.W. coast this summer; very different from the many hundreds, and even thousands, which used to appear at migrating time twenty years ago! The first were seen on the afternoon of 2nd March, 1924, after a thunderstorm in the morning, accompanied by heavy rain; half a dozen of the birds went from west to east, singly, not flying together; they were making a direct course, not feeding. The weather had cleared somewhat, but the sky was still partly overcast, and the wind was light northerly. On 19th March a small number was seen from Ulverstone Showground, twelve miles west of Devonport; they were coming from the east, and were flying low; wind S.W.; weather fine. The wind had been boisterous during the night and early morning. Welcome Swallows (*Hirundo neoxena*), Wood-Swallows (*Artamus cyanopterus*), and Pipits (*Anthus australis*) all seemed to leave about 21st April, just previous to which date we had some windy, cold days. At the same date, and since, small parties of Summer-birds (*Graucalus novæ-hollandiæ*) have been working along from eastward and passing westward in leisurely fashion, sitting about in trees and on fences, and taking such insect food as they could find. At the beginning of the 4th week of April I found the body of a male Blue-winged Parrot (*Neophema chrysostoma*, apparently), with the head taken clean off, lying under the electric wires by the roadside; it appeared to have flown violently against the wire while migrating by night, as the body was quite fresh when found in the early morning.—H. STUART DOVE, F.Z.S., W. Devonport, Tas.

Land Birds Visiting Lord Howe Island.—Lord Howe Island is a small speck on the ocean, four days' sail from Sydney, and yet it has been reached by certain of our land birds not noted as migrants, or specially gifted with sustained powers of flight. It is probable that these birds, caught by a westerly gale, find themselves over the water, and simply keep flying for several days, until this resting place comes in sight. If this is so, it illustrates that the wind is a factor in the distribution of birds, of which the well-known invasion of New Zealand by the Silver-eye (*Zosterops lateralis*) is a case in point. Messrs. P. Dignum and R. Wilson, residents of Lord Howe Island, now on a visit to Sydney, have supplied interesting records of Australian birds being seen on the island recently. They state that these birds generally appear after a heavy blow. The list of birds is:—Eastern Swamp-hen, or Bald Coot (*Porphyrio melanotus*), one bird; White-fronted Heron (*Notophoyx novæ-hollandiæ*), one bird; Welcome Swallow (*Hirundo neoxena*), several occasions; Magpie Lark (*Grallina cyanoleuca*), two birds; Mistletoe Bird (*Dicæum hirundinaceum*); Black-faced Cuckoo-Shrike (*Graucalus novæ-hollandiæ*), two birds; Black and White Fantail (*Rhipidura leucophrys*), two birds; European Starling (*Sturnus vulgaris*), in flocks of from 50 to 60 birds. Mr. Dignum states that none of the birds stayed for long, with the exception of the Fantail and Mistletoe Bird, and these unfortunately were collected for an English ornithologist.—A. S. LE SOUEF, C.M.Z.S., Taronga Park, Sydney.

* * *

Pallid Cuckoo in May.—On 30th May this year I saw a Pallid Cuckoo near the homestead on "Roseneath." The bird uttered the single note call two or three times as it flew away.—C. E. SIMSON, R.A.O.U., "Roseneath," Casterton, Vic.

* * *

The Moult of the Blue Wren.—In *The Emu*, Vol. XXIII., I published a few notes on the moult of the Superb Blue Wren (*Malurus cyaneus*). These notes were incomplete owing to my absence from home. This year I have attempted to fill in the missing record of the moult. On the 28th January, the male bird in full plumage, together with the female and three young were always to be seen in my garden. This continued right up to the 10th of February, when the male had a slightly ragged appearance. From this on to 14th the male gradually became more untidy, grey feathers appearing amongst the blue; on the 15th few blue feathers were noted on the body, but the tail feathers had the bluish colouring. The male now began to keep more to the shelter of shrubs, creepers, etc., seldom joining his family; but he always came out under the sprinkler when I started it first thing in the morning. This spray the whole family thoroughly enjoyed, warbling and running about under the water shower to their hearts' content. By March 1st the male had lost all colour, and had joined his family. March 20th.—The family of five grey birds are together, bathing under the spray from the sprinkler at 7 a.m., which is a daily performance with them when the sprinkler starts to spray. From close observation I have found that when the male bird moults the blue feathers are thrown off. I have actually seen one ragged blue feather thrown off when he shook himself during his morning bath, and have found numerous blue feathers in the garden. I have also come to the conclusion that when the male bird takes on his new coat of blue it is a colour-change of the feathers, none of which is cast off. Though this species more than probable the same pair of birds, have reared 17 young birds during my residence here (one brood a year only), and have kept their yearly brood with them till about the middle of April, I have found that only the one pair breed in my garden, which measures 110 feet by 220 feet, though there is plently of cover for nesting. Another pair of birds nest in my neighbour's garden; but, though often seen on our adjoining fence, they seldom encroach on "my Blue Wrens' patch," I have on occasions noticed a battle royal, more or less friendly, when the intruding pair has hurriedly departed over the fence with our male bird giving his triumphant warble from the top of the fence before returning to his home.—J. N. McGilp, King's Park, Adelaide.

* * *

Gould's Description of the Brown Warbler.—Copied from E. Ashby's note-book. Description of *Gerygone fusca,* Gould's Hand-Book, Sp. 156, page 268; amended E. Ashby, R.A.O.U. Congress, Adelaide, 1922. The word "white" should be amended to "brown." Description: "Two centre tail feathers brown, the remainder *white* (substitute brown) at the base, succeeded by a broad band of deep blackish brown, round which is a broad stripe of white, which entirely crosses the outer feathers, but only the inner webs of the remainder, the tips pale brown." (In some specimens the outer feather is white right across, in others barely so.)

I have this moment got down my specimens of *G. fusca,* and find that, with the substitution of "brown" for "white" where indicated above, the description is absolutely accurate for my specimens. On the other hand, the description as it stands is not accurate for the Western Australian bird that we have known as *culicivora,* and rightly so, I believe, for in that bird the white is carried across the outer web in more than the pair of outer feathers. I think that if you refer to Gould's plate you will find that *fusca* is applied to the bird with a brown base to the tail feathers, and *culicivora* to the bird with the white base to the tail feathers; if so, the plate is quite correct. To make Gould's description accurate, the word *brown* needs substituting for *white* in the one place. In no other way can Gould's work be made accurate whichever way you take it.—E. Ashby, C.F.A.O.U., "Wittunga," Blackwood, South Australia.

Seasonal Influences on the Breeding of Native Birds.—In the interior of the Australian continent, the seasons are very erratic; this affects the breeding of the birds of that region. In bad seasons the birds do not breed to any extent, and should they do so, the clutch laid is usually below normal. In good periods, when the supply of food is suitable, the birds lay large clutches, and continue to breed while "the going is good." The years 1921 and 1922 on Moolawatana were very bad, and few, if any, of the birds bred in the usual way. In April, 1923, we had a break-up of the drought, and within three weeks from the first rainfall, the birds were hard at work preparing for future families. During July, I noted some abnormally large sets of eggs. The Bare-eyed Cockatoo was invariably sitting on four eggs, whereas its usual clutch is 3. The Galah had also added another egg to its usual 4-egg set. The Ground Lark, whose 3 eggs were generally incubated, had preferred to hatch out 4 eggs as a rule, though sets of 5 eggs were noted. The Orange-fronted Tang had also taken 4 eggs as a fair thing; this also applied to the Crimson and White-fronted Tangs, which were nesting in larger numbers than recorded previously. The Brown Song Lark was sitting on 4 eggs, instead of its usual complement of 3 eggs. The little Red-capped Robin invariably had 3 eggs in nest, though this is unusual with this bird in the interior in normal times. The greatest increase noted was with the Cinnamon Ground-Bird, which was sitting on four eggs. Two eggs is usual, though 3 eggs have occasionally been found. Kestrels were endeavouring to hatch out 6 or 7 eggs. The Spotted Harrier had taken 4 eggs as its complement instead of 3 as usual. Though dozens of Australian Dotterels and Gibber-birds were observed nesting, none has exceeded the 3-egg clutch. The Black-banded Whiteface, which invariably has adopted the standard of 2 eggs in our part, had in one instance reared 4 young, and a 3-egg set was noted, though 2 eggs were the more often found. The foregoing serves to show that the birds realise their responsibility and lay more eggs when all things are favourable.—J. NEIL McGILP, R.A.O.U., King's Park, Adelaide, 5/12/23.

* * *

The Curlew, an Annual Visitor.—It is the usual custom of the Australian Sea Curlew (*Numenius cyanopus*) to nest in Siberia during June. A point of this kind should always excite one's interest, not only because it is a flight of 8000 miles each way to and from the tundra, but because the young return with the adults. At this abnormally late moment there is a flock of fifty on Pittwater, and we wonder why. What are the food and climatic conditions in the frozen north, and could we make this flock of birds a weather bureau? There certainly is a reason, because Godwits are mixed with them, making a further substantial interest. These migratory birds are feeding on the mud flats of a small islet a few hundred yards from the main shore. When the tide rises and covers their food bed and shelter, they too suddenly rise and make for the sandspit of Milford, a few hundred yards from the mainland. A hunter tells the story that one of this flock was large and fat, and made good eating. The present writer considers he was in good company when he fed on the same flats with these birds some 8000 miles from Hobart. He now feels there is something lacking in southern hospitality. The hunter was referred to the close season of the Game Act, with much misgiving as to the result of the next high tide.—R. HALL, H.F.A.O.U., Hobart, 16/6/24.

* * *

Cuckoo and Emu-Wren.— When I called upon a Devonport resident who indulges occasionally in Quail shooting, he showed me, as a great rarity, a Narrow-billed Bronze-Cuckoo (*Chalcites basalis*) and a male Emu-Wren (*Stipiturus malachurus*), which he had taken together. While traversing some tussocky, swampy country not many miles away, towards the end of March last, he noticed a pair of the Wrens alternately bringing food to their foster-child. As my friend approached, the pair vainly tried to induce the young Cuckoo to descend into the tussocky tangle in which they themselves took refuge. Mr. A. J. Campbell, in his fine work on the "Nests and Eggs of Australian Birds," mentions that, when in company with Mr. G. E. Shepherd, of the Victorian Field Naturalists' Club, he saw a nest of this Wren containing an egg of the Narrow-billed Bronze Cuckoo. This is the first instance I have met with in Tasmania of the Emu-Wren fostering the usurpers.—H. STUART DOVE, F.Z.S., W. Devonport, Tas.

* * *

The Birds of the Camp-Out.—In *The Emu*, Vol. XXIII., on page 293, Miss Fletcher, writing from a long experience in the Scottsdale district of Tasmania, states that the Crake noted "calling" there was most likely the Spotless Crake. As one of the compilers of the list of birds seen in Tasmania, I wish to express my thanks to Miss Fletcher for the correction, and I would like to say that Mr. Parsons and myself heard the call and were a little dubious about recording it; in any case, we showed that our observation was from the "call." This shows the need of care in recording birds. In dealing with many of our birds, records can be reliable only from skins actually collected on the spot. The information that Miss Fletcher gives in reference to the Emu-Wren is interesting. Judging by the weather we experienced in Tasmania, the Island birds evidently do not expect fine weather until late in the season and commence nesting operations earlier than a mainlander would expect.—J. NEIL McGILP, R.A.O.U., King's Park, Adelaide.

Nests of the Gang-gang Cockatoo.—In Mr. Howe's article on the Gang-gang Cockatoo in the July number of *The Emu* there are one of two statements that are not quite correct. Mr. Howe quotes me as saying the birds invariably breed in a hollow, dead spout. This is not correct, as of the three nests I have noted two were in such a position and one was in the main barrel of the tree. The first nest contained one egg, and was found on 2/11/1922; the second, with two young birds just hatched, was found on 30/11/1922, and the third with two young about a week old on 7/12/1922. With regard to the presence of the Glossy Black Cockatoo (*Calyptorhynchus lathami*) in the Casterton district, there is a Black Cockatoo with a red-tail here, but I have never taken a specimen, and it may turn out to be the Red-tailed Black Cockatoo (*C. banksi*). I hope to spend some time with the Gang-gangs this spring, and later to obtain a specimen of the local "Red-tail." If successful I shall write up my notes for *The Emu*.—C. E. SIMSON, R.A.O.U., "Roseneath," Casterton, Vic.

* * *

Bell Miners in the Casterton District, Western Victoria.—On the 7th May of this year I noted a flock of perhaps 40 or 50 Bell Miners (*Manorhina melanophrys*) on the Glenelg River, about eighteen miles north of Casterton. They appeared to be feeding amongst the leaves of the red gums, and were travelling in a south-westerly direction. This must be a western record for the birds, and it will be interesting to see if they establish themselves in the suitable country that starts forty miles further down the Glenelg River.—C. E. SIMSON, R.A.O.U., "Roseneath," Casterton, Vic.

Reviews

[A List of British Birds prepared by the Special Committee Appointed by the British Ornithologists' Union, and published by the authority of the Union.]

[Systema Avium Ethiopicarium.—A systematic List of the Birds of the Ethiopian Region. By William Lutley Sclater, M.A., M.B.O.U. Prepared in conjunction with Special Committees of the British and American Ornithologists' Unions. Part I., pp. 1-304. Published 30th April, 1924. Price, £1/1/-.]

A hearty welcome was given to these very important works which reached Australia practically together.

Curiosity ran high as to the standards of the *Systema Avium* (A.O.U. and B.O.U.) committees. It must be confessed that disappointment was keen, as it was realised that there was still much to be done before a uniform list of birds on uniform standards could be prepared.

Mr. Sclater is to be congratulated on the fine work he has done in dealing so effectively with the birds of so important a region as the Ethiopian Region. Though he refers to the A.O.U. and B.O.U. committees, yet such different names are used in these lists for so many birds common to the two lists that it is evident that much investigation and consultation will be necessary before the same name can be used for the same bird on both lists. (Australians when beginning the work of preparing the Second Edition of the Official Check-list made the use of the same name for the same bird their basic principle.) The classification of the two lists under notice, too, differs. Sclater adopts the classification used by Mr. A. H. Evans in the volume on *Birds* in the Cambridge Natural series; while the B.O.U. list is based on the classification of the *Handlist of Birds,* by the late Dr. Bowdler Sharpe, though beginning with the highly-developed Crows and ending with the more primitive Quails—the reverse of Dr. Sharpe's arrangement which was used in the Official Check-list of the R.A.O.U.

Though Mr. Sclater in the B.O.U. list apparently accepted one genus for the Sandpiper group of wading birds, yet in his African list he used several genera for the same birds.

The R.A.O.U. Check-list committee in particular found profit and interest in the study of these valuable lists. They feel encouraged to publish their list at an early date as a contribution that will probably help forward the search for finality of name and uniformity of standard.

The R.A.O.U. designedly adopted a "lumping" standard as regards genera. The B.O.U. List confirms that by placing the White Egrets in one genus. Likewise the White-browed Albatross—a casual on the B.O.U. List—is placed in the typical genus *Diomedea.* The lumping of the Sandpipers in one genus by the B.O.U. committee indicates a growing and spreading desire for still larger genera—a demand also strongly expressed in America. Both lists group the Kestrel with the typical Falcons; our Brown Hawk being intermediate would necessarily be included in the genus *Falco.*

It is noted that both lists adopt the practice of the American ornithologists of considering such generic names as differ only in gender endings as being identical. Thus *Erismatura* is used instead of *Oxyura* (not *Oxyurus*) on the African list. Both A.O.U. and B.O.U. committees have adopted that limited phase of one-letterism. Some ornithologists would go further and discard *Limicula* because of a prior *Limicola,* and *Meliphaga* because of a prior *Melophagus.*

It is noteworthy that both lists follow the International Code, though Sclater adds, "as nearly as possible, but there is a certain amount of ambiguity in the application of some of the rules which leaves the correct name for certain species still in doubt." The R.A.O.U. has likewise a few doubtful cases.

Australians regret that no list that has appeared recently supports the International Commission on Zoological Nomenclature in trying to stabilise nomenclature by accepting certain well-known generic names. In opinion 67 the International Committee finally accepted *Gallinago* with 101 other generic names. Both the B.O.U. and Sclater's list discard *Gallinago* in favour of the prior name *Capella* for the widely-spread Snipe. It was at one time hoped that the *Systema Avium* when finally prepared and issued as an authoritative list would be the final word in ornithological nomenclature. That day is not yet in sight. Meanwhile thanks and congratulations are offered to Mr. W. L. Sclater and to the B.O.U. Committee (Mr. A. H. Evans, Dr. E. J. O. Harbert, Mr. Tom Iredale, The Rev. F. C. R. Jourdain, Mr. G. M. Mathews, Mr. W. L. Sclater, Dr. N. F. Ticehurst, Mr. H. F. Witherby and Mr. E. C. Stuart Baker, Hon. Secretary of the Committee) for securing a distinct advance in the naming of the world's birds.

R.A.O.U. Conference

ROCKHAMPTON — OCTOBER, 1924.

Leave Melbourne not later than 11th October.

13th—Leave Brisbane per train, 9.30 p.m.

14th—Party arrives at Rockhampton, 3.45 p.m.
Evening—Civic reception.

15th—10 a.m.: Conference opens.
(His Excellency Sir Matthew Nathan in the chair.)
Presidential Address, Dr. J. A. Leach: "Naming Australian Birds."
2 p.m.: Outing—Lakes Creek.
8 p.m.: Lecture—"Birds of Australia," Dr. J. A. Leach.

16th—10 a.m.: Conference continues.
"Birds Observed during the past 50 years at Coomoolabaroo, Duaringa," by C. A. Barnard.
"Birds Likely to be Met in Rockhampton District," Mr. W. B. Alexander, M.A., C.F.A.O.U.
"Bird Notes from Willis Island," by J. Hogan, Meteorological Observer (communicated by A. J. Campbell, C.M.B.O.U.)
2 p.m.: Visit Botanic Gardens. Guests of his Worship the Mayor.
Lecture—"Birds in the Field," Capt. S. A. White. Park Avenue State School.
8 p.m.: Lecture—"Early Australian Bird Pictures," Mr. W. B. Alexander.

17th—10 a.m.: Visit to Gracemere. Guests of R. S. Archer, Esq.
2 p.m.: Conference continues.
8 p.m.: Lecture—"Economic Value of Birds," Capt. S. A. White, C.M.B.O.U., at the School of Arts.

18th—9 a.m.: Visit Olsen's Caves (all day trip).

19th—All day Trip on Fitzroy River.

20th—Outing to be arranged.
4.45 p.m.: Train for Yeppoon.

20th—Arrive at Yeppoon.

21st-27th—Camp at Byfield, 25 miles from Yeppoon, in good scrub. Lecture at St. Faith School.

FARES.

Rail from Brisbane to Rockhampton—
Free, by courtesy of Hon. E. G. Theodore, Premier.

Rail from Sydney to Brisbane (each way)—
First Class, £4/4/-; Second Class, £2/16/-. Sleepers (First Class only), 17/6 each way.

Rail from Melbourne to Brisbane (each way)—
First Class, £7/10/-; Second Class, £5. Sleepers extra.

Steamer Fares—
Melbourne to Brisbane (each way)—
First Class, £8/15/-; Second Class, £5/10/-.
Sydney to Brisbane (each way)—
First Class, £4/5/-; Second Class, £2/15/-.

Concession railway fares are two-thirds of ordinary fare above. A good party from the southern States is assured.

Any member desiring to attend should communicate at once with the Hon. Gen. Sec., 376 Flinders Street, Melbourne.

Notes.

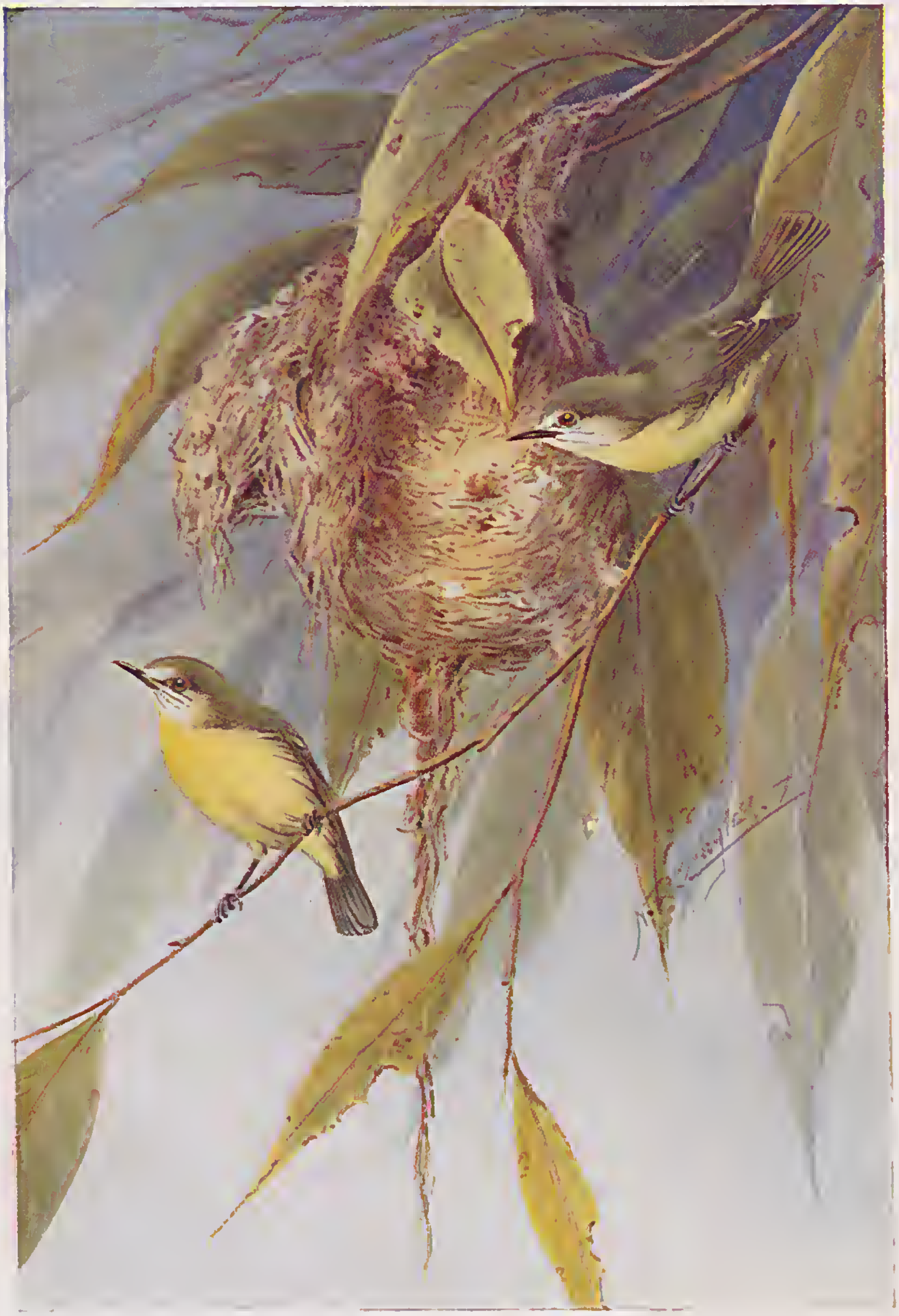
ABOUT MEMBERS.

Members will learn with regret that an esteemed ex-president, Mr. A. F. Basset-Hull, C.F.A.O.U., has been compelled by pressure of many interests and new duties to resign as a member of the R.A.O.U., and also as an *ex-officio* member of the Council. Members wish Mr. Hull much success and enjoyment in his new labours in connection with the Great Barrier Reef. Like much other matter, this note was crowded out of our last issue.

With regret members have received the announcement that Dr. J. A. Leach is not available for nomination as Hon. Editor of *The Emu.* The recent promotion of Dr. Leach to an important administrative position at headquarters in the Education Department of Victoria renders it impossible for him to find time to continue to fill the important and arduous position of Editor, an office held by Dr. Leach for over 10 years.

Pressure of official duties has also caused the resignation of Mr. R. T. Littlejohns as Assistant Editor. Mr. Littlejohns did very good work during his term of office, and was requested by the Council to "carry on" until the appointment of his successor.

The date of publication was October 1st, 1924.



Fairy Warbler (*Gerygone flavida*, Ramsay)
Male, female and nest. $\frac{7}{16}$ natural size.

(From a painting by Neville W. Cayley, R.A.O.U.)

The Emu

Official Organ of the Royal Australasian Ornithologists' Union

" Birds of a Feather."

VOL. XXIV.] 1ST JANUARY, 1925. [PART 3

The Fairy Warbler: A Re-discovery

By A. H. CHISHOLM, C.F.A.O.U., Sydney.

Probably the most interesting circumstance attached to the field work of members of the R.A.O.U. in coastal Central Queensland, during October, was the definite re-establishment of the Fairy Warbler*, *Gerygone flavida*. This clears up a doubt that has prevailed for nearly fifty years, and extends the recorded range of the species over four hundred miles southward.

Such a pretty puzzle has been created by this small bird, largely because male and female closely resemble the female of a kindred species, that the history is worth tracing in detail. *Gerygone flavida* was first taken in the Herbert River district, North Queensland, in 1874, by the late Dr. E. P. Ramsay, of Sydney. In the following year Ramsay wrote a paper on Queensland birds in the *Proceedings* of the Zoological Society of London, and there mentioned two species of *Gerygone* from Rockingham Bay of whose identity he was doubtful. Of one he said, "This is either *Gerygone culicivora* or a new species," and he proceeded to describe its haunt and nest, both of which point to the bird as being *G. magnirostris*. The second Warbler was "one of the most common species, always to be found in the dense scrubs by its pleasing, twittering note"; the specimens taken, in full moult, resembled *G. albogularis*. This second bird was the true *flavida*, of course; but A. J. North, in the first edition of his *Nests and Eggs* (1889) made the mistake of applying Ramsay's notes on the first-mentioned bird to the Fairy Warbler.

Reference to North's error takes us too far forward at the moment. It was in 1877 (in the *Proceedings* of the Linnean Society of New South Wales, Vol. 2) that Ramsay described his little bird of the pleasing note. "Throat and the whole of the under-surface citron-yellow," he wrote, in the course of that description. This was a trifle misleading, for the chin is white, with just a faint wash of yellow. Moreover, it is a little curious that the discoverer (a most able ornithologist) did not link his new bird with Gould's *Gerygone personata,* the Black-throated Warbler. Perhaps it was the contrast in the throat colours that caused him to turn aside from the "masked" bird and record that the nearest ally of his discovery was *G. albogularis,* the familiar White-throated Warbler. That alliance, however, is merely in colour; in all other respects (including size) the new bird was much closer to the little jungle Warbler with the dark throat.

---

*I use this term tentatively. "Yellow" Warbler, previously used in a few places, is not satisfactory, and fairy seems to fit this dainty bird (which we rediscovered in "Fairy Bower") better than any other Warbler.

This point became apparent later, of course, and by the time his *Tabular List* was published (1888) Ramsay himself had become doubtful as to the validity of *flavida.* "I have," he wrote, "lately seen specimens of a *Gerygone* from the north-east coast, which seem to indicate that my *Gerygone flavida* is only the female of Mr. Gould's *Gerygone personata;* but nothwithstanding the great similarity in size and plumage, further proof will be necessary, as we have lately received the adults, male and female, of *G. flavida,* shot on taking their nest and eggs, and three males examined are exactly alike in plumage to the female; but it is not improbable that the young males of *G. personata* resemble the females in plumage, and breed before attaining the adult male livery. No specimens, however, in the plumage of the adult male of *G. personata* have yet been obtained from Rockingham Bay."

It was the doubt thus created that caused A. J. Campbell, in his *Nests and Eggs of Australian Birds* (1900) to turn aside from the Fairy Warbler. Most responsibility for the denial of the species, however, rested with the late A. J. North. Certainly, Dr. R. B. Sharpe, in his *Catalogue of Birds in the British Museum* (1879) dropped *G. flavida* to synonymy as the female of *G. personata,* but he was acting on lack of evidence. North, on the other hand, admitted (in 1904) having before him six adult specimens labelled *G. flavida,* obtained by the late Kendal Broadbent from the jungles of Cardwell and the upper Herbert River, North Queensland, two of which the collector (a good field man) had labelled "scrub bird, new." The fact that North could not find any difference between these birds and the females of *G. personata* was surely not sufficient basis for a denial of the species, particularly as he could not find in any collection typical examples of the fully adult male of the black-throated bird taken south of the Endeavour River. Nor was he on really safe ground in lumping the birds because from Cape York to Cardwell the Yellow-breasted *Gerygones* nearly always were found to build their curious homes close to hornets' nests.

Closely following North's denial of the species came a statement by the late C. W. De Vis, curator of the Queensland Museum. He, in 1905 (Ann. Qld. Mus., Vol. 6, p. 41), admitted that there were good grounds for doubting the validity of *Gerygone flavida,* but decided, after close consideration and inspection of the type, that the species was sound. Incidentally, he mentioned two characters not included in Ramsay's description but present in the species, an orbital ring and a very pale, almost white, chin and upper throat. "The whiteness of the throat," he added, "is most decided in adult males; these have many feathers of the chin entirely white or nearly so. A few white feathers occur in most young males and females, but to judge from material at hand it is but seldom, even among females, that the throat can be said to be yellow."

The next development in the problem came as a result of the visit made to Cardwell in 1916 by Messrs. A. J. Campbell and H. G. Barnard, acting on behalf of Mr. H. L. White. In their *Emu* paper on the trip, these ornithologists recorded that from their field observations, they agreed with De Vis, that *Gerygone flavida* was a distinct species, this despite the fact that "some of our best authorities entertain the opinion that *G. flavida* is the female of *G. personata,* which is found from the Endeavour River northwards to Cape York, the male of which possesses the dark throat and forehead." They found several nests near Cardwell, and procured a mated pair of birds which were both without black on the throat. (An incidental remark that "Ramsay did not observe the bird" is evidently an error, for Ramsay says in his original note, "I shot it in 1874.") A. J. Campbell supplies, too, a good picture of the "Yellow" Flyeater's nest in proximity to a wasps' nest.

In the light of these observations (to say nothing of Ramsay's original description) it is surprising that Mr. G. M. Mathews, in his *Birds of Australia* (Vol. 8, 1920) fell into the rather startling error of figuring the wrong bird as *G. flavida.* Mathews, it would seem, had become confused through getting the impression that Ramsay's bird had the black throat patch, albeit "indistinct and ill-defined"; and when he got other specimens which he regarded as showing intermediates, he viewed the series as indicating "simply a matter of depth of coloration." Accordingly, he established three sub-species for Australia, with the *palpebrosa* of Wallace (Aru Islands) taking precedence by priority over Gould's *personata.* The fact was, of course, that Mathews had mistaken a lighter-throated *palpebrosa* (*personata*) for the true *flavida,* which latter bird he had never seen at all. It was a curious and an unusual error, made possible only by the fact that the birds figured came from near Cairns, not far north of the type locality of *flavida.*

THE LATEST FIND.

In a paper on the birds of Central Queensland, read before the Royal Society of that State in 1888, Kendal Broadbent recorded the presence of the White-throated Warbler near Rockhampton, and added that he failed to identify a second species of *Gerygone,* seen near the junction of Louisa Creek with the Fitzroy River. Recent events have indicated that this was probably his own "Cardwell Gerygone."* We met the species first at "Fairy Bower," a tract of pseudo-jungle bordering a creek, some five miles from Rockhampton. A nest hung, at a height of five feet, from a small horizontal bough of a tree twenty or thirty yards from the creek. It was emphatically not the nest of *G. albogularis,* being "dumpier"—as round in the body as a tennis ball, and about the same size—and with a much more pronounced hood over the entrance. Moreover, it had the northern *Gerygones'* trait of being associated with a wasp's nest, the vicious owners of which rendered examination risky. The birds did not appear at once, and when they did return they proved to be very shy and restless, much more so than the White-throated species, which they resembled in colour. Even then, however, it was possible to see that they had less white below the bill and were a good deal smaller. Moreover, though the nervous, chattering notes (sometimes a prelude to song) were akin to those of the southern Yellow-breast, the song itself was by no means the familiar chromatic scale; it was less plaintive, and closer to the bright melody of the Mangrove Warbler (*G. cantator*). A second nest inspected along the same creek was similar in situation and construction, but this time the wasps' nest was absent. Here the sitting bird was caught on the nest and examined. In neither case, however, was a specimen taken, "Fairy Bower" being a sanctuary.

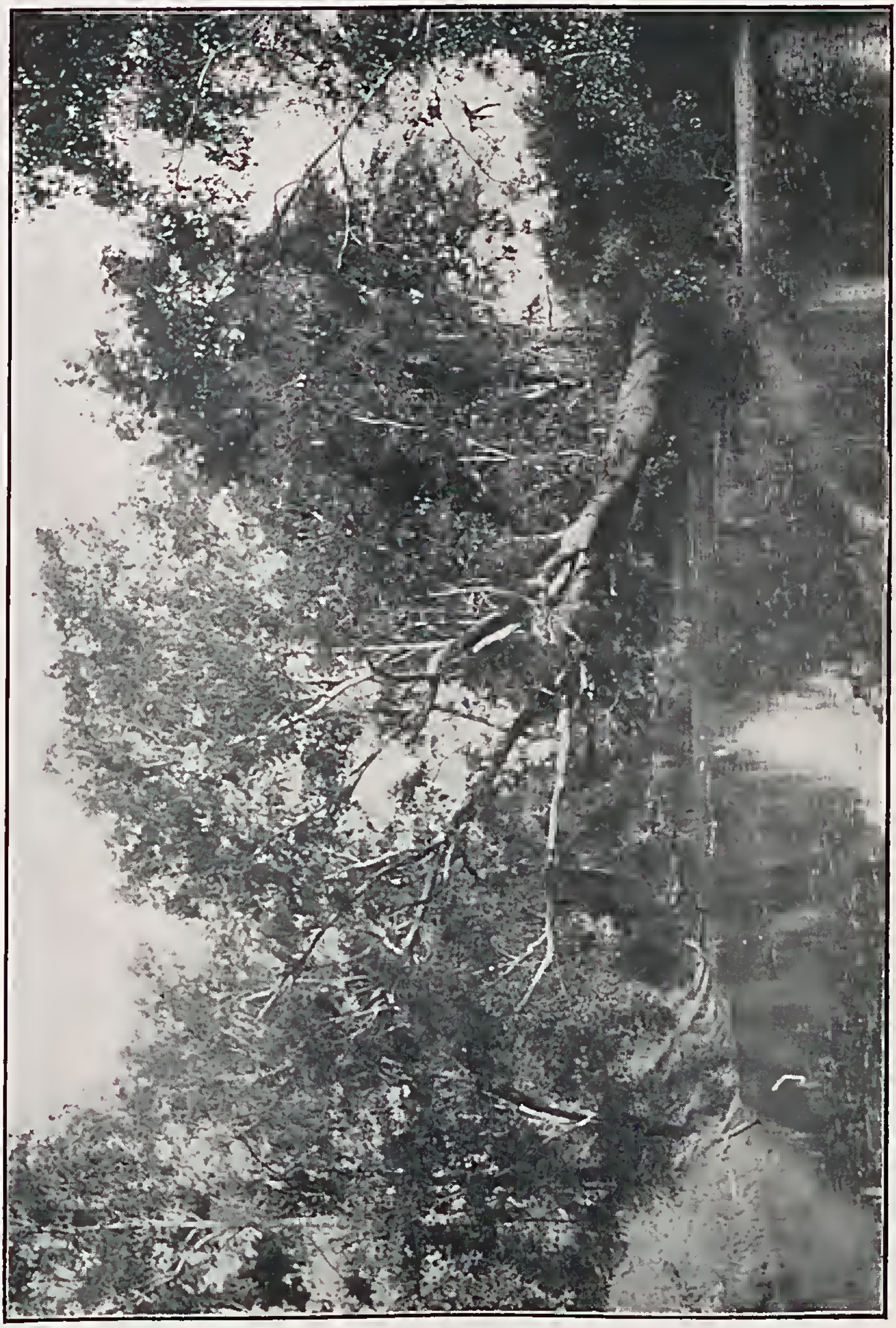
Mr. W. B. Alexander and myself had the impression that the species was probably the "Yellow" Warbler, but Mr. H. G. Barnard, the only member of the party who knew this species in the field, was doubtful on the point. Apart from the big extension of range, there seemed to him to be several little points of difference. So the question had perforce to be left open.

We next encountered the bird at Olsen's Caves, some twenty miles north of Rockhampton, in a patch of poor scrub; and again we saw several pairs near Yeppoon, some 35 miles from the city, and this time within a stone's throw of the coast. Here the animated chatter guided me to a pair that were feeding a young Bronze Cuckoo—a hungry creature about three times their size. The specific identity of this parasite was not apparent, but later developments suggested it to be the little-known Rufous-breasted Bronze Cuckoo (*Lamprocoecyx russatus*).

Interest in the problem having grown, we were pleased to hear the unknown *Gerygone* singing freely at Byfield, 25 miles north

---

* A specimen of *G. flavida* in the Queensland Museum collected by Broadbent and labelled "Rockhampton" proves that this was the case.—Editor.



Fairy Bower Creek, Rockhampton—a bird sanctuary.

Photo by D. S. A. Drain. R.A.O.U.

from Yeppoon, and ten miles inland. For the most part it kept to the scrubs or the scrubby margins of creeks, but occasionally it would venture into open forest country. Then its song could be heard at the same time as that of the White-throated species. A third nest found was built in a scrub-bush near a creek. Here, again, the remarkable hood was pronounced; and here, too, the birds were consistent in lacking any trace of a dark throat. Prompted by the Yeppoon experience, I removed the two eggs from this nest—there was no wasps' nest nearby—and, sure enough, found one of them to be the dark-bronze egg of a Bronze Cuckoo. Then Mr. Barnard and I secured a pair of the birds, each of which came readily to a call. Examination left no doubt that they were fully mature.

Comparison with Mathews' plate persuaded us that these specimens represented a new species—an opinion shared by Mr. Tom Iredale (who was associated with Mathews in his great work), when shown the skins at the Australian Museum, Sydney. But we both "suffered a recovery" on comparing the "new" birds with the Ramsay types of *flavida*. They agree almost precisely, the only difference being that the latest skins are slightly paler on the upper surface. This factor is probably due to the haunts of the southern bird being less dense than those of the Cardwell *flavida*, and is not, in my opinion, a sufficiently substantial basis even for a sub-species.

But there can now be no doubt whatever as to the specific validity of the Fairy Warbler. Has it been consistently working southwards since its far-off separation from the Black-throated Warblers of the tropics? Or, conversely, is the dark throat a more recent development, showing that after the bird-waves of ages ago had subsided, the ripples returned northward — the throat-colour deepening under the influence of distance, time, and depth of vegetation, and reaching its fullest strength with birds in the scrap of land that is now the Aru Islands?

The Australian Darter.—It is generally supposed that the Australian Darter is a fish-eating bird, and one having come to our little lake at Stawell, it was not long before it was shot. It fell to my lot to get it and mount it. I made a careful examination of the contents of the stomach, and to my surprise, there was not the least trace of fish of any description. The stomach contained only a number of worms, and about a tablespoonful of a moss which grows on the bottom of the lake. As fish abound in the lake, this was very remarkable, for the Darter could easily have caught them. Is the serrated bill used for cropping the moss, of which the Swans here are very fond? It is possible that the Darter is not a fish-eating bird (certainly this bird was not). Perhaps some of our readers may throw some light on this question.—J. A. Hill, R.A.O.U., Stawell, Vic.

Royal Australasian Ornithologists' Union. 23rd Annual Congress

Address delivered to members of the Royal Australasian Ornithologists' Union at Rockhampton on 15th October, 1924, by His Excellency Sir Matthew Nathan, G.C.M.G., Governor of Queensland.

For a newcomer in Australia a double meaning attaches to the rubric of "Here beginneth a new life," for not only will his own future experiences differ from those he has had in the less clear atmosphere and less free conditions of other lands, but the life around him, and to wonder with a new and stimulating wonder- from that which he has known before. The trees, the shrubs, and the grasses are different, and more different still is the animal life that meets him even in the midst of an imported fauna. Owing to these importations full realisation of the difference does not come to him until he has got out into the country and has seen something of the bigger animals—marsupial mammals and struthious birds. The slowest thinker is forced then to wonder at the distance that obviously separates the life of the old countries from the older life that is now around him and to wonder with a new and stimulating wonderment how this distance has been created. Of course it has some correspondence with geographical distance, but that geographical distance is not the cause of the great structural differences in the fauna of various regions is evident from the fact that there are countries as far from the homelands as is Australia, which have no such peculiar forms of life as there are here. In his inquiry for a more complete explanation the newcomer is thrown back to the most distant times, times in themselves vastly far apart, when continents sank and broke up, and forms of life were marooned on its fragments. In some fragments the forms maintained characteristics that disappeared from those in others or in the continental masses with which there was earlier connection, and again in the various separated masses and fragments new forms and characteristics, sometimes by the side of and sometimes in the place of the old, have developed according to the special conditions of each. It is not only or mainly geographical continents and islands that have their own forms of life. There are biological islands on the mainland and biological continents that include oceans. Deserts and snow-capped mountain ranges, desiccated or thrown up in prehistoric times, have isolated families, genera and species as much as have the deep seas then created, but the formation of deep seas and variations in the configuration of the oceans have, possibly more than any other results of earth movements, influenced the distribution of forms of life. The Nearctic, the Neotropical and the Australian regions are practically continental islands in the true sense; the Ethiopian and the Oriental regions are islands of which the insularity is completed by desert in the one case and snow regions in the other, while the four well marked sub-regions of the Australian animal kingdom have an island or archipelago origin except in so far as North Queensland maintains in the animal world its old connection with the Austro-Malayan sub-region. To this sub-region is, I believe, confined the genus of Cassowaries of which the dozen existing species yield such an excellent example to zoogeographers of differentiation under conditions of isolation. Originally at home in the large area of New Guinea, there are now, I believe, no less than five species there, and six in five neighbouring small islands, as well as one in North Queensland. This last must have differentiated since the separation of New Guinea from North Queensland by the formation of the Torres Straits—even the shallow depth of those straits sufficing to isolate a bird of bulky form and quite incapable of flight. Those among this company who are historical as well as zoological geographers will remember that well into the 18th century, Nova Guinea and Terra Australis are shown on maps as connected, and in Captain Cook's map Dieman's Land is drawn as part of New Holland. The discovery that these islands were separated from the mainland occurred in the opposite order to the actual separation. I understand geologists hold that Bass Strait was formed before Torres Strait, while a connection across what is now the Timor Sea was broken at an earlier date, and earliest of all there came separation of what we in these days term the Australian and Oriental zoogeographical regions by the breach between the islands of Lombok and Bali. The bearing of these separations on the bird life of Australia is, as you are, I am sure, aware, sketched in a fascinating manner by Mathews and Iredale in the introduction to their *Manual of the Birds of Australia,* where they suggest two early sources of endemic forms with two later immigrations from the north—the endemic forms, such as the Emu and Lyre-Birds, being confined to the southern part of Australia. In these forms degeneration set in where there was lack of inimical opposition, especially in Tasmania, unreached by the spent waves of immigration from the north after the formation of Bass Strait. Elsewhere competition arising both on the east and west sides of the continent between invaders and settlers, many of the weaker forms of the latter disappeared, while the stronger continued with accumulative progress arising from the struggle for life with the newcomers. Invasion from the north thus produced reaction from the south, the result showing itself in the form of differentiated species of prevailing northern genera. I can hardly conceive a more attractive study than that of zoogeographical distribution of species and sub-species to which the two great ornithologists I have mentioned invite us.

But I am a busy man and no naturalist, and though I find myself here in Queensland in the central chamber of what may be termed the world's richest aviary, I am forbidden to enter the great storehouse of bird lore through lack of the elementary knowledge which would open the door, and of leisure to acquire that knowledge. I have read that there are no less than 17 families of birds that are peculiar to the Australian region, that the Australian sub-region has nineteen-twentieths of the birds of the region, and "a larger proportion of peculiar birds than any other sub-region of any region" in the world, and that no less than 40 distinct species and as many as 184 local varieties of kinds found elsewhere in Australia have an exclusively Queensland range of occurrence. I assure you that it requires self-denial not to let oneself go in surroundings of such wealth for study. I have, however, turned my natural history interest in another direction. Australia has taken hold of me through the most unique of her great natural features, and I am endeavouring to associate myself with the work of one of its small living organisms—the coral polype--and of one of its big scientific organisations—the Great Barrier Reef Committee.

In connection with this large interest, I should like to see attention given to certain birds that, if not entirely cosmopolitan are at any rate not peculiar to Australia, but with regard to which our Committee, now firmly established with a scientific director, probably well known to all of you—Mr. Charles Hedley—may be in a position to give special opportunities for study. I refer to the species of Petrel, Gannets (3), Terns (3), Noddy, Frigate-Bird, and Tropic-Bird that congregate to breed on some of the cays and atolls of the Reef between Torres Strait and the Capricorn Group, and disperse over the oceans except during the breeding season, as well as to those other species associated with these that are found on the coast throughout the year. We—I am now speaking as a member of the Great Barrier Reef Committee—want to know all about the Reef, including the action and reaction of the various biological agents on each other in their work of building it up. The birds, with their capacity for making large guano deposits on the islands and with their influence on the fish life round them, are among these agents. In asking for more study of these tropic sea-birds, I do not for a moment want to give the impression that this study has been neglected in the past. These birds were observed, though unornithologically, by Banks in the "Endeavour," and Captain Cook gave bird names to some features of our coast (1770). Bynoe, surgeon of the "Beagle," in 1840-41, did work appreciated by Gould; and J. B. Jukes, in the "Fly" (1842-43), describes the colonies of sea-birds nesting on Lady Elliot Island at one end of the reef and at Raine Island near the other. John McGillivray, also on the "Fly" (1842-43) and afterwards on the "Rattlesnake" (1847-48), supplied to Gould accounts of the sea-birds on the islands at the northern end of the reef; and H. N. Moseley, on the "Challenger" (1874), also dealt with the bird colonies there.

Of recent years a party from this Royal Australasian Ornithologists' Union visited the Capricorn Group, near the southern end, in October, 1910, and in that and the following years Dr. W. McGillivray paid a series of visits to the islands off the coast between Cooktown and Cape York. Distinguished ornithologists have visited Upolu Bank and Oyster Cay, off Cairns, and the islands off Mackay, while E. J. Banfield, the "Beachcomber," made studies during his long residence on Dunk Island, and Captain J. K. Davis during his six months' stay on Willis Island. In the case of the last two names I have mentioned, the observations lasted for a considerable period, and it is such extended observation that should be made possible through the existence of the Great Barrier Reef Committee. From the point of view of systematic work, I am informed that it is not probable that any new species will be brought to light by further research. On the other hand, detailed observations of the numbers, distribution and habits of each species are required. It has been noted, for instance, that the different colonies of the same species, even on the same island or group of islands, often breed at different seasons. That this should have been observed in comparatively short visits gives an indication of the further information of this nature that might be acquired through more or less continuous observation. Then there is another direction in which such observation may be of great value. We have, thanks to the enlightened policy of the Department of Agriculture and of the Government of Queensland, excellent legislation to secure that main object of this Union: "The preservation and protection of the avifauna indigenous to or occurring in the Australian region . . . . and the islands and water adjacent or contiguous thereto." All the sea-birds except Cormorants are totally protected. We have evidence, however, that at any rate in the past no such protection has been enforced, and no doubt enforcement is difficult. The evidence I refer to shows that Booby Island, where half a century ago the greater part of the rock was white with the dung of sea-birds, is now entirely deserted, probably owing to the depredations, such as those that have been described by Dr. McGillivray in the *Emu*, of careless or mischievous visitors burning the dry grass, and the young birds with it, and of bêche de-mer fishers and others gathering birds' and turtles' eggs as food for their crews or for themselves. We know that there has been great injury done at Bramble Cay and Raine Island by South Sea Islanders getting eggs and birds for food during the breeding season, while even Mr. A. J. Campbell's enemy, the domestic cat gone wild, has managed to get to the North-west Island of the Capricorn Group and commit havoc among the birds there. The Great Barrier Reef Committee are constituting agents for the purpose of making observations on various matters—physical, meteorological, and biological—connected with their investigations. They will consider the advisability of approaching the Government with regard to these persons, or some of them, being authorised to exercise the powers conferred on officers by "The Animals and Birds Act of 1921." It further suggests itself that continuous observations with regard to avifauna, their times of visiting the islands, of breeding, etc., might also be recorded by these agents. As a result of their observations of the different colonies of birds, some regulated exploitation of the islands for guano or by the carefully regulated collection of eggs might be undertaken. To advise them on such matters the Great Barrier Reef Committee have fortunately the advantage of the presence on their body of Mr. W. B. Alexander, but I am sure the Committee will be glad if, in the course of this Conference, those members of the Ornithological Union who have special interest, not only in the sea-birds, but in others, like the Torres Strait (or Nutmeg) Pigeon, that visit or may visit the islands for rest and refreshment, would come together to make any suggestions that will help the Committee in carrying on their work of investigating, among other forms of life on the reef, that which is specially the care of the Royal Australasian Ornithologists' Union. To the members of that Union assembled for their Annual Conference for a third time in Queensland, I tender on behalf of the people and the Government of the State, and on my own behalf, a hearty welcome.*

The Naming of Australian Birds

By J. A. LEACH, D.Sc., Hon. Mem. R.A.O.U., C.M.B.O.U.,
C.F.A.O.U., Melbourne.

Presidential Address, read at Rockhampton, October, 1924.

INTRODUCTORY.

The completion of the Official Checklist of the Birds of Australia (Second Edition)† renders desirable some information concerning the accepted names and the principles under which they were fixed.

Australian ornithology falls into four periods associated with the outstanding namers of Australian birds: John Latham—the "Grandfather"—and John Gould—the "Father of Australian Ornithology." The first period is from Linnæus—the founder of binomial nomenclature—to Latham's Supplement to the *Index Ornithologicus* (1801); the second from 1801 to Gould (1837); the third, from Gould's *Synopsis of Australian Birds* (1837) to his *Supplement of the Birds of Australia* (1869); and the fourth, from 1869 to 1924.

---

*A report of the discussion which followed the delivery of this address appears on page 183.—Editor.

† It is expected that the *Official Checklist* (Second Edition) will be published at an early date.

J. A. Leach, D.Sc., Hon. Mem. R.A.O.U., C.M.B.O.U., C.F.A.O.U.,
Retiring President.

NATI[illegible]

Period.	Years.	Names. Generic.	Names. Specific.	Names. Total.
1. Linnæus to Latham (1758-1801)	43	60	199	259
2. Latham to Gould (1801-1837) ..	36	112	177	289
3. Gouldian (1837-1869)	32	108	252	360
4. After Gould (1869-1924)	55	34	76	110
	166	314	704	1018

NAMES OF WIDELY SPREAD BIRDS.

The Australian avifauna containing representatives of "every widely spread family of birds but two" (Vultures and Woodpeckers) has 54 names (23 generic and 31 specific), dating back to Linnæus—the great Swedish botanist—who, gathering names from earlier ornithologists, used them binomially. None belongs to a strictly Australian bird.

THE BEGINNINGS OF PRIORITY.

The B.O.U. List of British Birds (1883) used priority from the 12th Edition of Linnæus's *Systema Naturæ* (1766); *The Checklist of North American Birds* (1886) used the 10th Edition (1758), in which Linnæus developed binomial nomenclature. The second edition of *The B.O.U. List of British Birds* (1915) used priority from 1758. Thus the B.O.U. took a great step towards uniformity. *The Official Checklist of the Birds of Australia* (1913) was based on 1766, so a second edition as from 1758 became necessary. Unanimously, members in 1915 voted for "the same name for the same bird."

THE INTERNATIONAL COMMISSION AND FINALITY.

With the appointment of B.O.U. and A.O.U. committees, ornithologists hoped that the forthcoming *Systema Avium* would be official and final. The authority of the International Commission on Zoological Nomenclature—the Zoological League of Nations before the League of Nations itself—has even less reality than has the political League. The International Commission announced (Opinion 67) that "One hundred and two Bird Names had been placed in the Official List of Generic Names." Amongst these was *Gallinago* for the migrating Snipe. Several lists published recently contain *Capella* of Frenzel 1801 for *Gallinago* (1815). Thus has vanished the basis of an earnest desire! Few respect the authority of the International Commission. Apparently, "absolute bedrock priority" will cause further changes. Priority was, and possibly will be, the main cause of alteration. No less than 160 names of the Official Checklist were changed to a prior name.

NATIONAL MUSEUM MELBOURNE

OTHER EARLY AUTHORS.

Brisson, a great ornithologist, published, in 1760, the six quarto volumes of *Ornithologia.* As he did not always name species by one word, he was not a "binomial author"; as he gave good generic descriptions, and indicated species clearly, he was a "binary author." The International Commission accepted Brisson's generic, but not his specific, names. Fifteen of our generic names are from Brisson. One name is interesting. Brisson placed all the known species (97) of Cockatoos and Parrots in the genus *Psittacus.* Some species were named by more than one and some, including *Cacatua,* by one word. For years writers credited the generic name *Cacatua* to Brisson. His generic name was *Psittacus,* and his specific name *Cacatua.* Fortunately, Cuvier (1800) used *Kakatoë,* the French equivalent of the Latin *Cacatua,* as a generic name. It resembles in form and pronunciation the invalid generic name *Cacatua.*

Forster with 6 valid names, and Lacepede with 5, receive little space, as their names were not for exclusively Australian birds.

EARLIEST VALID NAMES FOR AUSTRALIAN BIRDS.

A century and a half ago great activity prevailed in all fields of human interests. The Spice Islands (Moluccas) were the wonder region of the world. Adventurous voyagers sought the mysterious *Terra Australis.* Expeditions were often accompanied by naturalists, who eagerly described the wonders of new lands. Captain Cook in 1770 explored Australia's eastern coast. He landed at few places, and missed even the common Laughing Kookaburra. Though accompanied by qualified naturalists (Dr. Solander, Sir Joseph Banks, and others) little was published about the remarkable fauna and flora of the world's present wonderland—the "fossil continent," Australia.

Two years later, Captain Cook visited Adventure Bay—the site of the 1923 R.A.O.U. camp-out in Tasmania. *The Narrative of the Expedition,* by Surgeon Ellis, contains the first published name of a strictly Australian bird—the superb Blue Wren—named *Motacilla cyanea* by Ellis, who was not a binomial or a binary author, but a painter. The name *cyaneus* is credited to Latham (1783), who named birds binomially. Much material collected by Captain Cook was never published. Forster's names date from publication in 1844.

Meanwhile other travellers visited islands north of Australia. Sonnerat made his famous voyage in 1772 and published plates of several birds that reach Australia, and one exclusively Australian bird. He did not use binomial names, and three authors proposed a name for the Laughing Kookaburra—the second Australian bird to receive a valid name. Boddaert (1783) gave *Alcedo gigas;* Hermann (1783), *A. novæ-guineæ;* and Scopoli (1786), *A. undulatus.* For many years, Boddaert's appropriate name was used. *Novæ-guineæ* is possibly the oldest name for this characteristically Australian bird which is not found in New Guinea, where Sonnerat saw it. Mr. W. B. Alexander suggested that the original was probably a caged bird brought from Australia.

Meanwhile Buffon and other non-binomial authors, in works on voyages to distant seas, described some Australian birds. Gmelin—a noted compiler—in the 13th edition of the *Systema Naturæ* (1788-9), gave these birds approved names; thirty-two are now used. Seventeen are for widely spread birds; fifteen for birds mostly Australian. Five birds are Australian, two range to Norfolk Island, six to New Zealand, and two to the islands north-west of Australia.

The Redwing Parrot and White Goshawk were appropriately named. The other three—the Green Rosella (Tasmania), the Rainbow (Blue Mountain) Lorikeet (Eastern and South Australia and Tasmania), and the Striated Pardalote (Tasmania) were described as from New Caledonia, Molucca and "America australis" respectively. The variable Rainbow Lorikeet was named on page 316 as three separate species: (a) *Psittacus molucca* from Molucca Islands; (b) *P. novæ-hollandiæ,* and (c) *P. multicolor,* both from New South Wales. The valid name is *molucca.* A name once given loses its original significance, and becomes a mere label; it cannot be changed even by its author because of error or inappropriateness, so *molucca* stands. The change from *novæ-hollandiæ* to *molucca* is a good illustration of "line priority." Errors of locality were common with early workers, and drawings and descriptions sometimes contained points taken from two or more birds, possibly later considered distinct species (*e.g., Eudyptes chrysocome,* Crested Penguin). Badly prepared specimens were often without data, and frequently data of crowded specimens became associated with wrong birds.

The Crimson Rosella, ranging to Norfolk Island, was named from New South Wales. The Scarlet Robin, also ranging to Norfolk Island (discovered in 1788), was named from Norfolk Island in 1789. Gmelin from New Zealand material named five birds common to Australia and New Zealand. These are the Grey Duck, the Grey Fantail, the Spotted Owl (the smaller Boobook), the Shining Cuckoo and the Pied Cormorant (now considered a distinct species by Mathews). The sixth bird, ranging to New Zealand—the Black-faced Cuckoo-Shrike—was named from Tasmanian material. The two birds ranging to the north-west—the Palm Cockatoo and the Nankeen Night Heron (named from New Caledonia) are unchanged specifically in the Second Edition.

PREOCCUPIED NAMES.

Kerr (Animal Kingdom, 1792) showed that *Psittacus novæ-hollandiæ* (Gmelin, p. 328) for the Cockatiel or Cockatoo-Parrot had been used (p. 316) for the Rainbow Lorikeet. Hence *P. novæ-hollandiæ* for the Cockatiel was a "preoccupied name." Similarly, Kerr showed Latham's *Psittacus formosus* (Ground Parrot) had been used by Scopoli. The one binomial name can be used for only one bird.

Casuarius australis, used for the Emu, is not available for the Cassowary. Unfortunately, a faulty statement in the Code suggests a loophole that some wish to explore. Let us press for one name for each kind of bird and one bird for each name—the commonsense view of the whole purpose of nomenclature!

Twenty-eight "preoccupied names" have been replaced by names proposed subsequently.

EARLY PUBLICATIONS CONNECTED WITH AUSTRALIA.

Dr. Shaw (British Museum) named birds mentioned in publications connected with the new colony. White, Phillip, and Hunter, in early accounts of the new land, mentioned several new birds. Shaw gave 21 valid specific names, including those for the Rosella, Budgerygah, and Pied Currawong (Bell Magpie).

LATHAM AND THE WATLING DRAWINGS.

Latham is, next to Gould, the most prolific namer of Australian birds. In the *General Synopsis*, he used no scientific names except *Motacilla cyanea*, copied from Ellis for the Blue Wren. In the first Supplement he used *Podiceps* (Grebes); in the *Index Ornithologicus* (1790), 15 valid specific and one generic name (*Scythrops*, for the Channelbill Cuckoo); and in 1798, he named Magpie-Goose, and the common Emu-Wren specifically. In 1801 in the second Supplement to the Synopsis and its Latin equivalent—the Supplement of the *Index Ornithologicus*—Latham named 171 species from Australia, but did not disclose the material on which these names were based. In 1843, Strickland, Gould, and Gray recognised the basis in a set of 295 paintings—a series of importance to Australians. Separate drawings occasionally showed male, female, and, rarely, a young bird. Latham sometimes described each as a distinct species. For the Noisy Miner, Mathews lists four, and for the Southern Stone Curlew, three Latham names.

Sixty-four of these names are now used. Possibly this work was unknown to Gould when he prepared his *Birds of Australia*. He used many Latham names in the *Handbook* (1865), though not always the earliest. The Wonga Pigeon, Southern Stone Curlew, Pied Peewee, and Eastern Whip-Bird, are birds with names changed to Latham's first name. One figure of the Peewee Latham classed as a Crow (*Corvus*), another as a Grackle (*Gracula*); one figure of the Noisy Miner, a Grackle; and another, a Bee-eater (*Merops*). Doubtless, lack of detail in the drawings was responsible for erratic generic grouping. Some Latham names await finality. Our Committee used *flabelliformis* (Fantail Cuckoo), *rubricata* (Rock-Warbler), and *fascinans* (Jacky Winter). Mathews rejected these as being indeterminable. Mathews accepted *atricapillus* (Brown-headed Honeyeater), *melanocephala* (Noisy Miner), and *orientalis* (Little Friar-Bird); the Committee, as these had been applied to other birds, considered them indeterminable. Compromise is needed here.

These paintings have been called the "Watling drawings." Thomas Watling was a convict who in 1792 painted birds about Sydney for Surgeon White. Mathews has recently shown that there are two sets of drawings: (1) a set previously owned by Lambert and used by Latham, and (2) a second set deposited in the British Museum and described by Dr. Bowdler Sharpe.

PART II.—FROM LATHAM TO GOULD.

Space will not permit mention of several authors with one, two, or even three names each. Exception must be made of Lewin (1808), who prepared the first work on birds published in Australia. His drawings and plates were excellent. He gave *Meliphaga* (Honeyeaters) and *chrysocephalus* (Regent Bower-Bird). Savigny (1809) named three widely ranging Hawks in a work on Egyptian birds. Illiger (1811) was a "purist." He objected to "barbarous" names—a mixture of Greek and Latin roots—and would discard such. That is not permitted; a name once given cannot be altered. He gave *Pachyptila* (Prions); *Burhinus* (Southern Stone Curlew); *Pezoporus* (Ground Parrot), and *Centropus* for our non-parasitic Cuckoos.

THE WORK OF VIEILLOT.

In April, 1816, Vieillot, a "brilliant ornithologist," published *Analyse d'une Nouvelle Ornithologie élémentaire.* Linnæus (1758), used 63 genera for the world's birds; Brisson (1760), 115; Linnæus (1766), 104; and some were named later. Vieillot (1816), used 273 genera; fifteen of his new genera are on our list; seven are applied to well-known Australian birds. Emu, Shrike-tits, Blue-Wrens, Peewee, Pardalotes, Honeyeaters (*Melithreptus*), and Friar-Birds he named generically. Unfortunately, the value of this small book of 70 pages was not realised. Cuvier's reputation as a comparative anatomist was, perhaps, responsible, and when he published *Le Régne Animal* (The Animal Kingdom) in December, 1816, his names were used and Vieillot's were neglected. In the 36 volumes of *La Nouvelle Dictionnaire d'Histoire Naturelle,* Vieillot gave two generic, *Podargus* (Frogmouth) and *Manorina* (Bell Miner), and 25 specific names. He totals 50 (18 generic and 32 specific) names on our list. Some birds described by him had already been named by Latham.

Two names (*Dromaius* and *Coracina*) await decision. On page 54 of the *Analyse* is *Dromiceius* for the Emu. In the glossary (p. 70) it is spelt *Dromaius.* Prof. Newton considered *Dromaius,* being closer to the root, was the corrected name. Mathews and Iredale pointed out that there is a later *Dromiceia* for an insect and that probably *Dromiceius* was intended.

Eudyptes (p. 70) for the Crested Penguins was spelt *Endyptes* (p. 67). Mathews has accepted one correction (*Eudyptes*), but has rejected the other (*Dromaius*). Misprints were numerous in some early works.

ONE-LETTERISM.

The case of *Coracina* (Vieillot's name for the Cuckoo-Shrikes) introduces an important question. *Coracina* was invalidated by *Coracinus* (Pallas, 1814), and *Graucalus* (Cuvier, December, 1816), was used in the *Official Checklist.* It is a case of "one-letterism." One phase of one-letterism is gaining acceptance. A specific name differing from another only by a gender ending is considered identical with it. Thus *albus* (masculine), *alba* (feminine), and *album* (with a neuter generic name) are considered identical. There is no Rule bearing on this obvious case of virtual identity. The articles allow for the rejection of specific names differing only in stated points of spelling. B.O.U. and A.O.U. Committees, Sclater and Mathews treat generic names differing only in gender endings as identical. Dr. Hartert does not do so. Mathews extended "one-letterism" to a central letter, and rejected *Meliphaga* because of a prior *Melophagus* and *Limicola* because of *Limicula.* Mathews, in a praiseworthy attempt to reach uniformity, offered a compromise. If we adopt one-letterism applied to gender endings, he will give up one-letterism of a wider application. As the A.O.U and B.O.U. already accept gender endings, it seems desirable to adopt the compromise. In our election pledges we accepted "the same name for the same bird," and "the same principles and standards as are applied in the B.O.U. list." Under this compromise, we should lose *Coracina, Oxyura, Synoicus* (not *Synoicum*), and gain *Graucalus, Erismatura,* and *Ypsilophorus.* The first and second names were used in the *Official Checklist.* We retain also *Callocephalon, Plectorhyncha, Meliphaga,* and *Limicola,* discarded by Mathews. As "a" and "o" are not gender endings, *Tyto* for the Barn Owls is not invalidated by a prior *Tyta.* Cuvier, who was very successful in the study of mammals, is reported to have said, "Show me a tooth and a footprint and I shall restore the animal." He, however, did not dissect birds or apply his own principles in their study. He gave *Kakatoë* (White Cockatoos), *Graucalus* (Cuckoo-Shrikes), *Dicæum* (Mistletoe-Bird), and *Squatarola* (Grey Plover). His name *Rhynchæa* (December; 1816) for the Painted Snipe has been replaced by *Rostratula* of Vieillot (April, 1816).

SEVERAL EUROPEAN AUTHORS.

Kuhl (1820), a promising ornithologist, died young. He worked mainly on Parrots and Cockatoos, and has two generic and eight specific names. *Probosciger* (Palm Cockatoo) and *Ptilonorhynchus* (Satin Bower-Bird) are his. Corella, Northern Rosella, Western Rosella, and Red-capped Parrot are among his species.

Accompanying two French expeditions were two enthusiastic young naturalist-doctors, Quoy and Gaimard. Eleven species were taken by these fine workers on the coasts of Australia and New Guinea, including the Black and White Wren (Dirk Hartog Island), the Twenty-eight Parrot, Western Firetail, Dusky Robin and Northern Fantail; these were described in two well illustrated works, *Voyage de l'Uranie* and *Voyage de l'Astrolabe.*

Temminck, of Amsterdam, became the leading ornithologist of his day, and his classification was widely used. Thirty-two (two generic and thirty specific) valid names are due to him. *Climacteris* (Tree-creeper) and *Orthonyx* (Chowchilla or Log-runner), are his generic names. The Bass Strait Mutton Bird (*Puffinus tenuirostris*) was named by him from a Japanese specimen in 1834, twelve years before Gould named it the Short-tailed Petrel, but over thirty years after Bass and Flinders had used it for food. One Temminck name is still in suspense. *Malurus galactotes* (from "New Holland") was considered the Tawny Grass-Bird. Close comparison of skins shows a remarkable resemblance, though Mathews, Iredale and Sclater consider the bird so well figured is an African species. Mathews has named our bird *Dulciornis alisteri.*

Stephens (1826) who continued the work of Dr. Shaw, gave eleven (six generic and five specific) valid names. The generic names include *Botaurus* (Brown Bittern), *Biziura* (Musk Duck) and *Trichoglossus* (Lorikeets). The birds named specifically, include Silver Gull, Spurwing Plover, and Masked Owl.

Swainson (1825) who "as an ornithological artist had no rival in his day," has twenty-four (sixteen generic and eight specific) names. The numerous excellent figures in Newton's *Dictionary of Birds* are mostly from Swainson. He was a capable zoologist, and named generically Fruit-Pigeons, Ground-Doves, Tree Ducks, Pink-eared Duck, Australian Robins (*Petroica*), Yellow Robin, Rifle Bird, and Regent Bower-Bird.

VIGORS AND HORSFIELD.

In 1827 appeared in the *Transactions of the Linnæan Society*, a paper of the first importance. In 1824, Caley collected near Sydney for the Linnæan Society of London. Vigors and Horsfield worked through these collections and described many birds new to science. It is said that only half the paper was published, the rest being held over and lost. They have altogether over fifty valid names. They named generically Fantails, Scissors-grinder, Harmonious Thrush, Whip-Bird, Silver-eyes, Wattle-Bird, and Rosella. Vigors continued as editor of the "Zoological Journal," and became first secretary of the Zoological Society of London. Horsfield (East Indian Museum) worked amongst Javan birds, naming some that migrate to Australia. His name *Mirafra* is used for the Bush-Larks. His memory is perpetuated in the Horsfield Bush-Lark—our well-known soaring lark.

VARIOUS AUTHORS.

Billberg (1828), a Swedish worker, named Barn Owls (*Tyto*), a Bittern (*Ixobrychus*) and the Sanderling. Wagler (1829), a German, elaborately described species in a series of monographs. Black Swan and Rock Pebbler (Smoker) were named generically, and Brown Bittern, Plumed Egret, and Greenwing Pigeon were named specifically. Kaup (1829) invented many new genera; six are on our list; two are for Australian birds—the Wedgetail Eagle and the Square-tailed Kite. Jardine and Selby (1827-1843) were "zealous amateur artists." They began in 1827 a series of *Illustrations of Ornithology* not completed until 1835. In 1843, they began a second series. The genera—*Phaps* (Bronzewing Pigeons) and *Haliastur* (Whistling Eagle)—and eight species including the Jardine Caterpillar-eater, and the Great Bower-Bird, were named by them. Three Parrots were figured and named by Lear (1831-2). By naming the female (*anthopeplus*) before he named the male (*melanura*), he altered the name of the Smoker or Black-tailed Parrot (*Polytelis*). Brandt (1836), a Russian, gave generic names to Wood Duck and Magpie Goose. Lesson (1831), another French naturalist, who visited Australia, gave twenty-three (thirteen generic and ten specific) names. The birds named generically include Bustard, Gang-gang Cockatoo, Emu Wren, and White-winged Chough.

PERIOD THREE—JOHN GOULD.

Towering over all is "The Bird Man"—John Gould—with more than one-quarter (forty-five generic and two hundred and thirteen specific names) of the 1018 valid names for Australian birds. Gould, after publishing his "Synopsis of the Birds of Australia" (1837-8), began his large folio work, *The Birds of Australia.* After issuing two parts he came to Australia to obtain more material and to study the birds under natural conditions. In 1840 he returned to England, cancelled the two parts already issued, and published his great work in seven volumes. Later, he added a supplement as an eighth volume, completed in 1869. In 1865, the revised letterpress was re-published as the *Handbook of the Birds of Australia;* in this he brought the names to date, using many Latham names.

In the "good old days" one bad practice prevailed. Anything from a remote place was described as new until it was proved identical with species already named. Over sixty specific names of the Official Checklist were changed because the same bird had already been described elsewhere. Even Gould named many birds, including migrating waders, as new, though they spent only the period of the northern winter here. Perhaps there was some excuse. A Siberian migration would, in his day, have been regarded as inconceivable, and the birds when seen here were in their plainer "winter" plumage. Altogether Gould named more than two-thirds of these "extra-limital" birds as distinct. One great benefit conferred by Mathews and Iredale is that they have placed Australian birds in proper relation to the birds of the world. Possibly it was not previously realised that birds were such wanderers. Peregrine Falcon, Barn Owl, Little and Crested Grebes, are four birds common to Britain and Australia. Listed in Australia as the Black-cheeked Falcon, Delicate Owl, Black-throated and Tippet Grebes respectively, relationships were hidden, more names had to be learned, and the mass of knowledge of these birds in Europe was not available for students here.

TYPE DESIGNATION.

George Robert Gray (British Museum) gave eight valid generic and fourteen specific names. He listed genera and species, and issued beautifully illustrated works. He paid special attention to designating type species of genera. These designations caused several changes. *Meliphaga* went from the Regent Honeyeater to the group previously called *Ptilotis*.

The five methods of type fixation allowed by the Rules are: (1) When there is but one species in the genus, that is the type species; type designation by monotypy. (2) When a species has the same name as the genus, or when the species name means the same as the generic name, or when a species is called *typus* or *typicus*, that species is the type species; type designation by tautonomy. (3) When creating the genus, if the author indicates one species as the type; type designation by original designation. (4) If later, the author or some other author designates one species as type, type designation by subsequent designation. (5) When of two or more species in a genus all but one are removed to another genus, type fixation by elimination. Mathews, Hartert, and A.O.U. do not recognise the fifth method.

Only one Australian generic name—that for the Wattle-Birds—does not fall definitely under the four recognised methods. In 1816, Vieillot, in his *Analyse*, used *Creadion* for the Australian Wattle-Birds and the New Zealand Saddleback. In 1827, Vigors and Horsfield considered the Saddleback was not congeneric with the Wattle-Birds for which they used *Anthochaera*. They left *Creadion* for the Saddleback. At least, this is type designation by elimination, *Creadion* for the New Zealand bird. It is also possibly type fixation of *Creadion* by subsequent designation. In 1830, Lesson designated *paradoxus* (Yellow Wattle-Bird) as the type species of *Creadion*. Consideration is being given to this case.

SOME NOTABLE WORKERS.

Three notable dividers of genera were contemporaneous with Gould: (a) Reichbenbach, a German, has fourteen valid generic and two specific names; (b) Prince Bonaparte has sixteen generic and one specific name; and (c) Cabanis has seven generic names. Most of these were used in Gould's *Handbook*. Though Linnæus employed few genera and Vieillot apparently increased the number (273) greatly, yet Gray (1840-1849) listed 2400 generic names (not all valid), that had been used for birds.

Eyton working amongst Ducks named one genus and three species found in Australia; Hodgson likewise has three names, and Blyth, also working in India, gave two generic names and one specific name to a bird later named as new in Australia. His specific name was for the Australian White-browed Tree-creeper, apparently sent in exchange from the National Museum, Melbourne.

PART IV.—AFTER GOULD.

From the completion of Gould's *Supplement of the Birds of Australia* (1869) to the present day—one-third of the period under review—there have been added only about 10 per cent. of the valid names. This is not due to any want of interest or endeavour, but to the thorough work of Gould and his associates, of whom three—Gilbert, Drummond and Strange—met death in the field. A. J. Campbell, in his "Nests and Eggs," has given a good account of Australian field workers; here we are concerned only with the givers of valid names.

SOME LATER-DAY WORKERS.

Dr. Ramsay (Australian Museum, Sydney) gave eleven valid specific names (two before 1869), and De Vis (Queensland Museum, Brisbane) gave one generic and six specific names, including *Sericornis tyrannula* (the Charleville Scrub Wren); the unique type specimen has been lost. Dr. Bowdler Sharpe (British Museum) gave seven generic names. Count Salvadori (Milan, Italy), one of the leading ornithologists of the age, has four generic and three specific names for birds, mainly of the north. The late A. J. North (Australian Museum) has four generic and eleven specific names, mainly for birds of the dry interior. Professor McCoy (National Museum) gave names to two species. He was just beaten by Gould in the publication of a name for the rare Helmeted Honeyeater called *cassidix* by Gould and *leadbeateri* by McCoy. Stejneger, before he left birds for reptiles, wrote the section on Birds for the Standard or Riverside Natural History. He there introduced two generic names—*Atrichornis* and *Amytornis*—for the preoccupied names —*Atrichia* and *Amytis*. His descriptions were brief, but unmistakable. Mathews accepted *Atrichornis*, but rejected *Amytornis* as a "nude" name, not properly defined or indicated.

SOME R.A.O.U. WORKERS.

The late A. W. Milligan, Hon. Ornithologist, Western Australian Museum, Perth, is remembered by five valid specific names; he was a field worker as well as a museum ornithologist. Our veteran member, A. J. Campbell, also has done good service in the field, as well as with the "H. L. White Collection," National Museum, Melbourne; he likewise has five valid specific names. H. L. White, of Belltrees—the well-known patron of Australian ornithology—has two specific names, and several other members have each one valid name.

GREGORY MATHEWS, AN OUTSTANDING FIGURE.

Since 1906, Mr. Gregory Mathews has investigated matters connected with Australian ornithology. Assisted by Mr. Tom Iredale he has cleared up every obscure point. A thoroughly honest worker, he has even dropped his own name when fresh evidence was available. He has seven new generic and fifteen specific names. Begun in 1906, his great work—"The Birds of Australia"—is still about two years from complete publication. He has been so helpful in discussing difficulties and in making information available that at last we are approaching finality. Mathews is certainly the outstanding figure of the fourth period.

THE GENERAL POSITION—GENERA, SPECIES AND SUBSPECIES.

Mathews' offer to accept large genera if his many names are printed as subgenera, opens the way to agreement. This section (genera) is now a matter of adjustment.

As concerns species, our list occupies a middle position. Mathews' *Handlist* (1908) had 883 species—many were races or subspecies. The Official Checklist (1913) reduced these to 751, and listed 78 (mainly subspecies) in the Provisional List. Mathews' Checklist (1924) has 664 species. The Second Edition of the Official Checklist (1925) has 704 species. Mathews regards 35 of our species as subspecies. This is largely a matter of personal judgment, for, in nature, there are only individuals; scientists may, in good faith, differ as to the grouping of these.

Members early decided that the time was not opportune for consideration of the validity of the many subspecies proposed. The absence of much material from Australia was largely responsible for that decision. All synonyms used in recognised works on Australian Birds, whether names of valid subspecies or not, have been listed in the order of giving.

VERNACULAR NAMES ARE IMPORTANT.

While scientific names are necessary for the scientist, they are of less interest to the general worker, the bird lover, and the man in the street. Every bird has a recognised vernacular name which is often a better aid to identification than is the scientific name. The scientific name must be the same in all countries and languages, so it is governed by laws more rigid than the laws of the Medes and Persians, and must change under those laws when knowledge changes as more facts come to light. It is not so with the vernacular name. Here appropriate, interesting, inspiring and euphonious names should be used. An American list with Bobolink, Chickadee, and Killdeer, and the British list, with Skylark, Blackbird, Goldfinch, and Blackcap, were the envy of bird lovers. Our Australian list, with Great Brown Kingfisher, Yellow-vented Parrakeet, White-rumped Wood-Swallow, Black-faced Cuckoo-Shrike, and White-shouldered Caterpillar-eater, was of less interest to non-experts and children.

However, Australian birds are becoming better known. Kookaburra, Currawong, Galah, and Willie Wagtail will please poets and young people and still further endear the birds to our children—the future citizens and ornithologists of this great land.

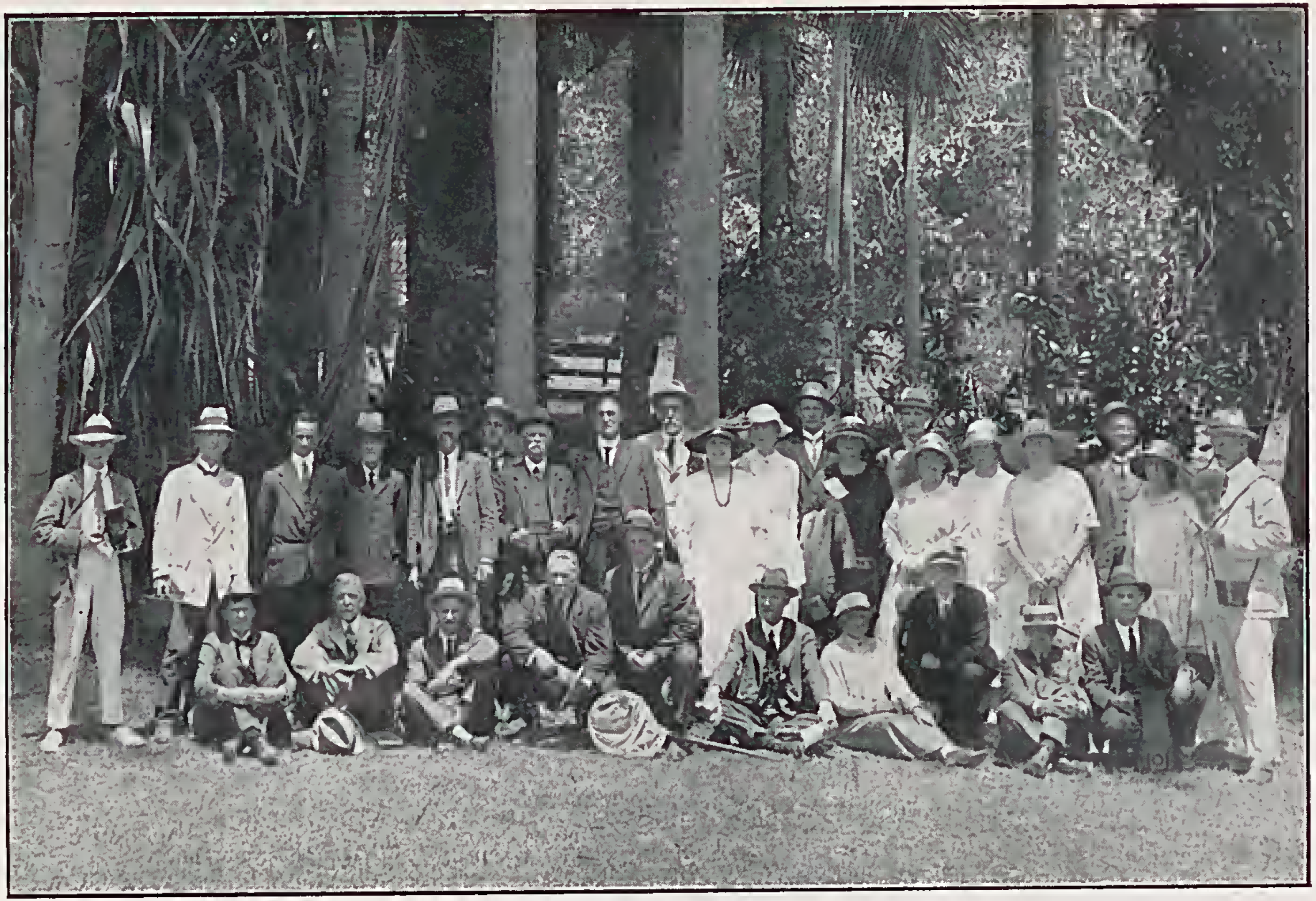
Trouble for the Editors is, in the concluding stages, certain. How shall Skylark be printed as regards hyphen and capital letters? Authorities in English cannot agree, and Skylark is approved in four forms: (a) Skylark, (b) Sky Lark, (c) Sky-lark, and (d) Sky-Lark. Truly, it has been said that "the use of the hyphen is chaotic," and almost as bad is the use of the capital letter.

CONCLUSION.

The *Official Checklist* (Second Edition) was practically completed when four events of importance occurred. (1) The *Systema Avium Ethiopicarum*, Part I., by W. L. Sclater, M.A., and (2) *The Name List of British Birds*, by the B.O.U. Committee, came to hand; (3) then the concluding part of Mathews' Checklist gave up-to-date synonymy; and (4) more acceptable still, Mathews' proposals re subgenera reached us.

The generic standard of Mathews' Check List differed so greatly from that of the African and B.O.U. lists that agreement seemed impossible. *The Systema Avium Ethiopicarum*, a most valuable work, followed a different classification from that of the B.O.U. list. The R.A.O.U. Committee urged large genera, the African and B.O.U. lists supported and even extended that view. Mathews' new generic proposals agree well with the B.O.U. genera, and are acceptable. The few points of difference are now being discussed. Full agreement in a list of Australian birds that all can use is now certain, and will be a happy termination to a lengthy period of uncertainty and difference in the scientific names of Australian birds.

NATIONAL MUSEUM MELBOURNE



Group of members of R.A.O.U. entertained by the Mayor at Botanic Gardens, Rockhampton.

Names (left to right), standing—M. S. R. Sharland, C. H. H. Jerrard, P. V. Maloney, R. W. Illidge, H. Wolstenholme, A. Boldemann, W. R. Gates, Alderman W. Kingel (Mayor of Rockhampton), H. J. Carter, Mrs. Barker, Miss Macdonald, H. G. Barnard. Mrs. Drain, W. B. Barnard, Mrs. H. G. Barnard, Mrs. Turner, Mrs. Mackenzie, C. A. Barnard. Miss Kingel, E. P. Mackenzie.

Sitting—A. H. Chisholm, Dr. A. Chenery, W. B. Alexander, D. W. Gaukrodger, Dr. J. A. Leach, G. H. Barker, Mrs. Israel, A. Musgrave, C. L. Barrett, D. S. A. *Drain.*

Minutes of the Twenty-third Annual Congress of the R.A.O.U.

Held at Rockhampton, Queensland, on October 15th, 16th, 17th, and 18th, and concluded at Byfield, October 22nd, 23rd, and 25th, 1924.

WEDNESDAY, OCTOBER 15th.

There were present His Excellency Sir Mathew Nathan, G.C.M.G., Governor of Queensland, accompanied by Miss P. Nathan and Captain Turner, A.D.C., Dr. J. A. Leach (President), Mr. C. A. Barnard (Ex-President), Messrs. A. H. Chisholm and W. B. Alexander (Vice-Presidents), Messrs. A. Boldemann (President), and P. V. Maloney (Hon. Secretary) of the Central Queensland Native Birds Protection Association and the following members and friends:—From Tasmania: Miss Macdonald and Mr. M. S. R. Sharland; from Victoria: Mrs. Israel and Messrs. W. F. Gates and C. L. Barrett; from New South Wales: Dr. A. Chenery, and Messrs. H. Wolstenholme, H. J. Carter, T. G. Sloane, N. Chaffer and A. Musgrave; from Queensland: Mesdames G. H. Barker, H. G. Barnard, D. S. A. Drain, E. P. Mackenzie and A. J. Turner and Miss H. Geissmann, Dr. A. J. Turner and Messrs. H. G. Barnard, D. S. A. Drain, W. B. Barnard, D. W. Gaukrodger, H. A. Longman, C. H. Jerrard, E. P. Mackenzie, R. Illidge, and G. H. Barker (State Secretary).

CHAIRMAN.

Dr. Leach opened the conference by welcoming His Excellency and inviting him to preside over the deliberations. The Governor accepted the invitation and took the chair amid acclamation. He stated that it would be a great pleasure to him to preside over the deliberations of the R.A.O.U. members, and trusted much good would result from the conference. He then delivered an address.*

Appreciation of the interesting and instructive nature of the address was expressed by Messrs. Longman, Alexander, Chisholm and Leach. Mr. Longman expressed the hope that His Excellency would allow the address to be printed in *The Emu.* Mr. Alexander made special reference to the portion of the address which dealt with the sea birds of the Great Barrier Reef. Other countries, he said, were far ahead of Australia in the protection afforded to sea birds. He mentioned Peru, where such birds were protected, even under the regime of the Incas. He hoped that the conference would assist the Barrier Reef Committee by suggesting a scheme for the further study of the birds and thought that the result of such study might well be the exploitation of the birds of the reef, under proper control, both for their eggs and for guano. Mr. Chisholm also thought that an industry could be built up from the eggs of birds on the Barrier Reef. He referred to the former flights of Torres Strait Pigeons southward along the coast of Queensland, and stated that in recent years the numbers of these birds had been seriously reduced owing to the depredations of shooters. Thanks to recent legislation of the Queensland Government these depredations had been greatly lessened, if not stopped. Dr. Leach referred to the trade in Mutton-Birds carried on in Bass Strait for the past 100 years, and thought there was no reason why a similar industry should not be developed on the Barrier Reef.

---

* Sir Mathew Nathan's address appears in full on page 166.—Editor.

His Excellency, in reply, said that although the aim of the Barrier Reef Committee was the investigation of that remarkable geographical feature purely on scientific lines, it was hoped that such study would lead eventually to the development of industries such as those mentioned by the speakers.

APOLOGIES FOR ABSENCE.

Apologies were received from Capt. S. A. White, Dr. S. Roberts and Messrs. A. J. Campbell, A. J. Butler, C. Coles, Lewis, and A. C. V. Bligh. Miss Fletcher and Messrs. R. Hall, E. A. Le Souef and C. Lord sent greetings.

MINUTES OF LAST MEETING.

As these had been circulated in *The Emu* for January, 1924, they were, on the motion of Mr. Longman, taken as read and adopted.

BALANCE SHEET.

In the absence of the Treasurer, Mr. Z. Gray, the balance sheet was read and its adoption moved by Mr. G. H. Barker (State Secretary).† The motion was seconded by Mr. Gates. Mr. Alexander spoke at some length on the Council's method of handling the Coloured Figure Fund and its neglect to publish a separate balance sheet of the moneys received and expended under this fund. At the present time it was impossible for ordinary members to know whether the fund was in credit or not, or whether the money was being used for other purposes. In consequence, he and others had ceased subscribing to it. He had raised this question at two previous annual meetings, and had written to the Council on the subject, but the position still existed. He moved therefore, that "This Conference directs the Council to keep a separate account of the Coloured Figure Fund and furnish a balance-sheet each year." Mr. C. A. Barnard seconded the motion, which was also supported by Dr. Chenery. Dr. Leach stated that the Treasurer placed all miscellaneous revenue to the credit of the only fund, other than subscriptions, that was open, and that not one penny of money contributed for the fund had been spent for any other purpose. He thought that the misunderstanding was due to the title of the fund, which should be altered. Mr. H. A. Longman moved: "That the Coloured Figure Fund be wound up and a new fund be started, called the Illustration Fund." This was carried. Mr. Alexander then moved: "That a full statement of subscriptions to the Coloured Figure Fund and expenditure on Coloured Plates be published in the *Emu*." This was carried unanimously.

---

† The balance sheet is published on page 206.—Editor.

SECRETARY'S REPORT.

The Hon. Secretary's report‡ was read, in his absence, by Dr. Leach, who moved its adoption. This was seconded by Mr. Barrett and carried.

Mr. Gates moved, and Mr. Barrett seconded: "That the thanks of the Union be accorded to Mr. Z. Gray for the untiring effort he has put forward as Treasurer and for acting as Secretary on several occasions." Both gentlemen spoke from personal knowledge of Mr. Gray and his methods, and gave him high praise. The motion was carried unanimously and with acclamation.

ELECTION OF OFFICERS.

Owing to the great number of postal votes on the table, it was proposed that scrutineers to go through and tabulate them be appointed. On the motion of Dr. Leach, Messrs. Gates and C. A. Barnard were chosen. In accordance with the rules, a ballot of those present was taken for the position of President. The scrutineers then retired to count the votes.

REPORT OF LIBRARIAN.

Dr. Leach read the report of the Librarian (Mr. F. E. Wilson)* and moved its adoption. Mr. Alexander seconded and stressed the importance of binding the periodicals in the Library. The report was adopted.

REPORT OF EDITOR.

The Report of the Editor of *The Emu*† was read and its adoption moved by the Editor (Dr. Leach), who announced that owing to the increasing pressure of his official duties he would not be available for re-election. Mr. Gaukrodger seconded the motion and made appreciative reference to the excellence of the journal and the good work done by Dr. Leach. Mr. Barker supported the motion, and at his instance the Conference carried a cordial vote of thanks to Dr. Leach for his untiring efforts. Messrs. Sharland, Carter, Alexander, Longman, Chisholm and Drain took part in the discussion of the report. The importance of maintaining the high standard of *The Emu* was emphasised, and some criticism was levelled at the policy of placing a number of illustrations on one plate. Dr. Leach, in reply, stated that not one picture in *The Emu* had been reduced by him as Editor, but admitted that portions of background had in some cases been eliminated. The report was adopted.

---

‡ The report appears on page 199.—Editor.

* The report appears on page 204.—Editor.

† The report is published on page 204.—Editor.

APPOINTMENT OF EDITOR.

Mr. Barker proposed and Mr. Chisholm seconded the appointment of Mr. Alexander as Editor of *The Emu.* Dr. Leach expressed the opinion that whilst it would be difficult to find a better man for the position, yet the fact that Mr. Alexander lived in Brisbane and the journal was published in Melbourne would make it impossible for him to do the work especially as regards the preparation of illustrations. Mr. Barrett pointed out that as *The Emu* was a quarterly journal, there should be ample time to arrange for the supply of all matter, including plates, between the editions. There being no other nomination, the Chairman declared Mr. Alexander duly elected. In responding, Mr. Alexander said that while fully appreciating the honour conferred upon him, he felt very diffident about accepting the position, especially after what had been said by Dr. Leach, who had such a long experience as Editor. However, as it was the wish of the Union that he should take up the duties, he would do his best.

VOTING PAPERS.

At this stage Mr. Chisholm referred to the Council's Memorandum attached to the list of candidates for election to the Council to the effect that 14 must be voted for or the vote would be informal. He expressed the opinion that there was nothing in the Articles of Association to justify this memorandum, and asked for a ruling on the point. After some discussion the Chairman ruled that the memorandum was *ultra vires,* and the scrutineers were instructed to disregard it. The Conference then adjourned to the following day.

THURSDAY, OCTOBER 16th (ROCKHAMPTON).

Owing to the re-arrangement of the programme in connection with the visit to the Botanic Gardens, the Conference did not meet till 1.45 p.m., promptly at which hour the Governor resumed the chair.

REPORTS OF STATE SECRETARIES.

Mr. Barker read his report as State Secretary of Queensland.† That from New South Wales‡ was summarised by Mr. Chisholm, and Mr. Sharland gave a verbal report of activities in Tasmania. Victoria, the home State of the Union, was covered by the General Secretary's report, but no reports were received from South or Western Australia or New Zealand.

---

† The report is printed on page 203.—Editor.

‡ The report is printed on Page 200.—Editor.

ELECTION OF PRESIDENT.

At this stage the scrutineers announced that they had completed the counting of votes for the position of President, and that the result was: J. A. Ross, 113 votes; A. H. Chisholm, 82 votes. The chairman thereupon declared Mr. Ross duly elected.

VICE-PRESIDENTIAL NOMINATIONS.

Prior to the taking of a ballot for three Vice-Presidents, Mr. Chisholm asked members to strike out his name, which had been placed on the list without his knowledge. The nominee of New South Wales members, he said, was Mr. P. A. Gilbert.

REPORT OF CHECKLIST COMMITTEE.

Dr. J. A. Leach read the report of the Printing Sub-Committee of the Checklist Committee.* Mr. Longman commented on the report, and moved that: "In cases where the name adopted for an Australian bird differs from that commonly used in works published abroad the Checklist Committee should ask the International Commission on Zoological Nomenclature to place it on the list of *nomina conservanda.*" Dr. Leach asked that before this motion was gone on with those members of the Checklist Committee who were present should be allowed time to discuss it, and Mr. Longman thereupon withdrew his motion. The report was adopted.

BIRD SANCTUARIES AND GAME LAWS.

Mr. Chisholm introduced this matter and referred to the Amending Bill to the Animals and Birds Act then under discussion in the Queensland Parliament. He said that the basic principle of the bill was that native birds and animals were the property of the Crown, and mentioned that among other changes it was proposed to give the Minister the power to declare any area a sanctuary even without the consent of the owners of the land. He stated that there were already more sanctuaries in Queensland than in any other State, and more in the vicinity of Rockhampton than in any other part of Queensland, and this was due to that live local body, the Central Queensland Native Birds Protection Association. Mr. Longman said that most of the existing sanctuaries were near the coast, and advocated the creation of inland sanctuaries. Mr. Gaukrodger supported this plea, declaring that residents in the west generally favoured bird protection and would support such a project. Dr. Turner advocated the formation of small protected areas near towns. After some further discussion a committee consisting of Dr. Leach and Messrs. Longman and Barrett was appointed to make definite recommendations at a later sitting.

---

* The report is printed on page 204.—Editor.

EARLY ILLUSTRATIONS OF AUSTRALIAN BIRDS.

At 8 p.m. the Governor took the chair, and Mr. Alexander exhibited a series of lantern slides taken from early published pictures of Australian birds. The illustrations shown began with those from Dampier's Voyage, published in 1703, and included some from Phillips' and White's Voyages, and the works of Shaw, Lewin and Swainson. It was pointed out that of about 700 species on the Australian list, over 200 had been figured before Gould began his study of Australian birds in 1837.

Sir Mathew Nathan, in proposing a vote of thanks, gave some interesting particulars of a visit he had paid to the house of Dampier, in Devonshire. He referred specially to the beauty of the illustrations by Lewin, which did not seem to have been surpassed by later artists.

The Conference then adjourned to the following day.

FRIDAY, OCTOBER 17th (ROCKHAMPTON).

The Governor took the chair promptly at 10 a.m.

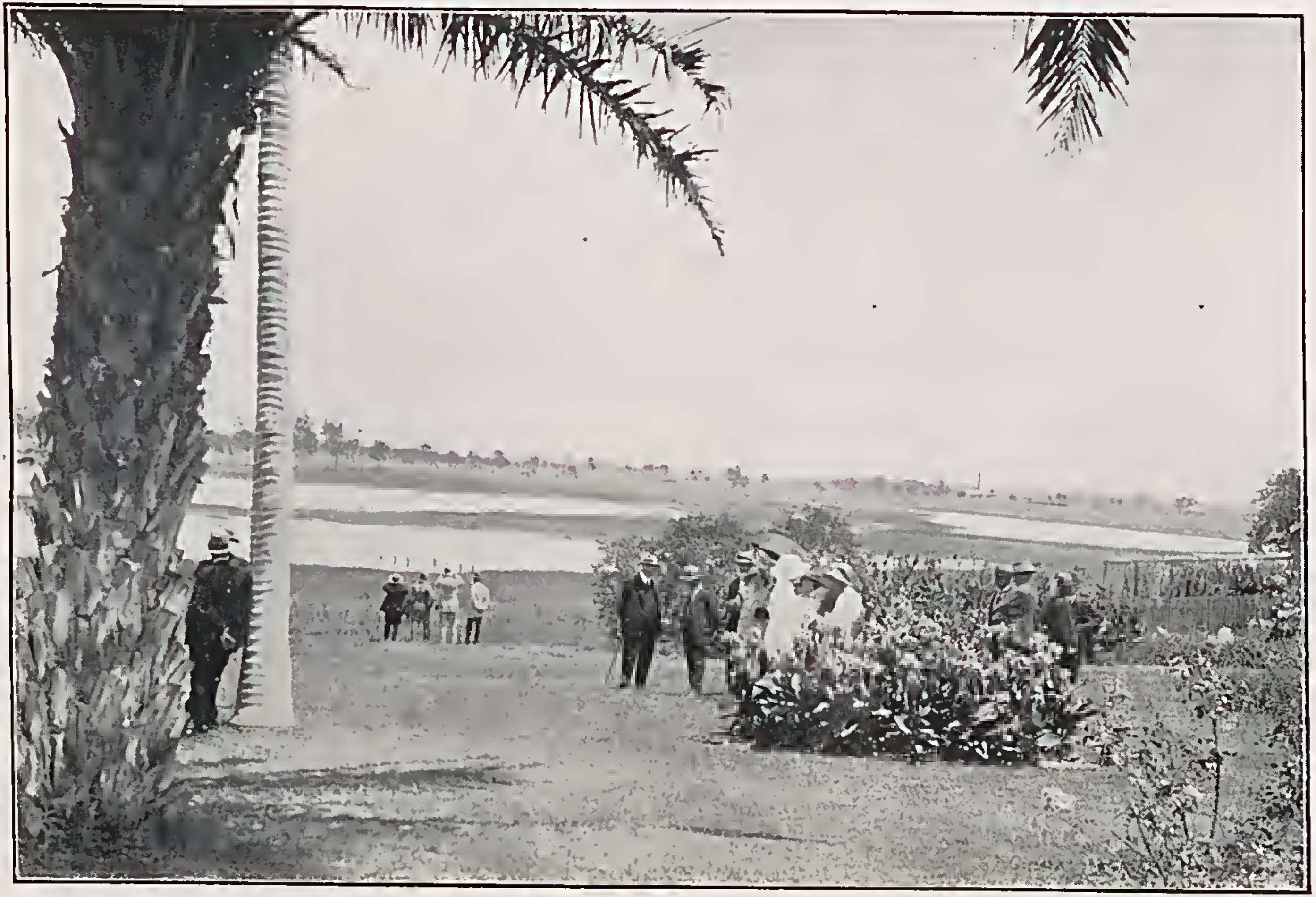
ELECTION OF VICE-PRESIDENTS.

The scrutineers announced that the counting of votes had resulted as follows:—

W. B. Alexander, 151; E. Ashby, 121; Dr. E. A. D'Ombrain, 120; A. H. Chisholm, 64; E. A. Le Souef, 57; P. A. Gilbert, 48. The chairman declared the first three duly elected. The ballot for members of the Council was then taken, and the scrutineers again retired.

EXPORT OF BIRDS AND ANIMALS.

Dr. Leach gave an account of the growth of the movement, which had led to the appointment of a committee in each State to advise the Minister for Customs in regard to the granting of permits for the export of native animals and birds. The Union could fairly claim most of the credit for this result. It seemed desirable that the Committees in the several States should keep in touch with one another and exchange recommendations. There was a feeling in some quarters that it was better to allow the export of pests than to poison them, and the New South Wales committee had recommended the issuing of a permit for the export of 500 galahs on this ground. The Minister had previously adopted a resolution of the Victorian committee that no export should be allowed for private profit, and for this reason



Members of R.A.O.U. in the Botanic Gardens, Rockhampton: Victoria lagoon—a bird sanctuary—in the background.

Photo by Miss H. Geissmann, R.A.O.U.

a permit was refused in the case referred to. In other respects the position was not altogether satisfactory, since London dealers were still advertising the regular arrival of shipments of live birds from Australia. It was supposed there was a leakage from Western Australia or the Northern Territory. Considerable discussion followed, and it was agreed to bring the matter up again at a later stage.

ELECTION OF COUNCIL.

The counting having been concluded, the following were declared members of the Council:—

P. A. Gilbert (N.S.W.); F. E. Howe, H. Purnell, R. T. Littlejohns (Victoria), Dr. S. Roberts, W. G. Harvey (Queensland); Prof. J. B. Cleland, Dr. A. M. Morgan (S.A.); P. T. Sandland, E. C. Orton, Judge T. P. Draper (W.A.); A. L. Butler (Tas.); R. H. D. Stidolph, W. W. Smith (N.Z.).

PRINTING COMMITTEE

On the motion of Mr. Alexander, seconded by Dr. Leach, the following were appointed members of the Printing Committee: A. J. Campbell, A. H. Mattingley, C. L. Barrett, A. H. Chisholm, N. W. Cayley.

PRESIDENTIAL ADDRESS.

His Excellency then called on Dr. Leach to deliver his Presidential Address, which was entitled, "The Naming of Australian Birds."* In proposing a vote of thanks, Sir Mathew Nathan observed that Dr. Leach had shown an intimate knowledge of the subject. There were evidently many difficulties to be solved, but the solution, he was sure, would be guided by the fullest possible knowledge. Mr. Longman seconded, and said that the ornithologists would not be sorry when the wrangle over bird names had ended. Mr. Chisholm held that the vernacular names were much more important to the public than scientific names. Mr. Alexander pointed out that at previous conferences the Checklist Committee had been instructed to follow the rulings of the International Commission on Zoological Nomenclature, and, also, in cases where a bird was common to both countries, to use the same name for it as that adopted by the B.O.U. In at least one instance the B.O.U. had not followed the International Commission, and he thought the meeting might decide which of these bodies should be followed when they were not in agreement. Dr. Leach objected to a vote being taken on this matter. Messrs. Barrett and Gates also spoke, and the vote of thanks to Dr. Leach was carried by acclamation.

---

* The address appears on page 170.—Editor.

DEPARTURE OF THE GOVERNOR.

At 11.30 Sir Mathew Nathan vacated the chair, as he had to catch the midday train back to Brisbane to fulfil his week-end engagements there. Dr. Leach took the chair, and spoke in appreciation of His Excellency's conduct of the business. He moved a cordial vote of thanks to Sir Mathew, both for his presence at the meeting and his services as chairman. The vote was carried with enthusiasm. His Excellency, in acknowledging it, wished the Conference every success during the remainder of its deliberations. He then took leave of the members, and accompanied by Miss Nathan and Captain Turner, A.D.C., proceeded to the station.

FOSSIL EMU BONE.

Mr. Longman exhibited a fossil legbone of an Emu found by him near Mitchell, in South-western Queensland, and stated that it was closely similar to the corresponding bone of the living species, *Dromaius novæ-hollandiæ* It was quite distinct from that of a Cassowary, which was shown for comparison.

DE VIS' WORK ON THE BIRDS OF PAPUA.

Mr. Longman read a report by Mr. G. M. Mathews on this subject. Mr. Alexander, in commenting on the report, stressed the fine work done by the late Mr. De Vis on the birds of Queensland as well as those of Papua.

BIRD PAINTINGS BY NEVILLE W. CAYLEY.

Mr. Chisholm exhibited a number of bird paintings by Mr. Cayley. These were much admired by members.

BIRDS OF COOMOOBOOLAROO STATION.

Mr. Barnard then read a paper detailing the changes observed among the birds at this well-known station during the last fifty years.* Mr. Gaukrodger congratulated the writer on his most interesting paper. Speaking of the reason for the disappearance or decrease of certain species he gave it as his opinion that cats were probably responsible rather than bush fires. Messrs. Chisholm, Alexander, Barrett, Drain, Jerrard, Leach and Barker took part in the discussion, and all spoke appreciatively of the many valuable observations made by members of the Barnard family at Coomooboolaroo. By request Mr. H. G. Barnard added many interesting details of his observations during and after the 1902 drought, when abundance of birds from the interior appeared in the district followed by extraordinary numbers of native cats. Certain birds, notably the Squatter Pigeon, had been extremely rare ever since. Mr. C. A. Barnard extended a cordial invitation to members to visit Coomooboolaroo after the conclusion of the Conference.

---

*Mr. Barnard's paper will appear in full in the next number of the "Emu."—Editor.

FAUNA PRESERVATION.

Dr. Leach read a report by Mr. E. Ashby, Convenor of the Committee on Reservations and Methods of Minimising the Danger from Fires;† also a letter from Mr. Ashby stating that the resolution carried at the last annual meeting directing the Council to appoint members from other States to serve with him on the Committee had not been acted upon. Messrs. Barker and Chisholm stated that members from Queensland and New South Wales respectively had been appointed and the Council notified of their appointments. After some discussion Messrs. Chisholm, Alexander and Barrett were appointed to go into the matter and make recommendations to be discussed in camp.

HONORARY MEMBERSHIP.

The subject of an honorary membership for Dr. J. A. Leach, retiring President, had been introduced by the voting paper. Several members pointed out that Interstate members of the Council had not been consulted on this matter, and, moreover, that it should not form the subject of a general vote, but stand as a recommendation from Council to Congress. They made it clear that only the principle of procedure was involved, and not the particular recommendation under consideration. Discussion being somewhat protracted, and the usual time of adjournment long past,and as it had been arranged to start early in the afternoon on a visit to Gracemere, Mr. Barker moved that the meeting adjourn and that the rest of the business set down for discussion be dealt with in camp. The chairman ruled this motion out of order, upon which Mr. Barker moved that the chairman's ruling be disagreed with. The situation was overcome, on the suggestion of Mr. Sharland, by agreeing to hold an additional session on Saturday evening.

The Conference then adjourned till Saturday.

SATURDAY, OCTOBER 18th (ROCKHAMPTON).

Dr. Leach took the chair at 8 p.m.

HONORARY MEMBERSHIP.

The chairman withdrew when discussion of this subject was resumed, and Mr. Chisholm, Vice-President, occupied the chair. He ruled that the general vote taken by the Council was out of order, and moved that the appointment of Dr. Leach to Honorary Membership be taken as a Council recommendation and endorsed. Dr. Leach, he said, had brought a remarkable amount of energy to bear on the work of the Union, and had greatly assisted popular bird study through the agency of his "Bird Book." Mr. Barrett seconded the motion, and referred appreciatively to the work of Dr. Leach. The motion was supported by Messrs. Longman, Drain, Chenery, Wolstenholme, and Barker, and was carried unanimously.

---

† The report appears on page 196.—Editor.

Dr. Leach was recalled, and Mr. Chisholm in a neat speech conveyed the resolution to him. Dr. Leach thanked the Conference for the honour done him, and Mr. Chisholm for his kindly words in conveying the resolution. He then resumed the chair.

PROCEDURE AT COUNCIL MEETINGS.

The second recommendation made by the Council was then considered. It read: "That all correspondence and business be listed in the minutes of meeting supplied to each member of Council. The Councillor will then send any comments or vote to the Hon. Secretary. Victorian members will vote at the meeting to which these are submitted." Mr. Barrett said this matter had been thoroughly discussed at Perth and he thought the proposal unworkable. He did not see how business could be carried on if there was to be a month's delay before any matter was decided. After discussion the recommendation was amended to read: "That, whenever possible, all correspondence and business be listed in the minutes of meeting supplied to each member of Council. The Councillor will then send any comments to the Hon. Secretary." The amended resolution was carried.

HONORARIUM FOR THE SECRETARY.

On behalf of Mr. P. A. Gilbert, Mr. Chisholm formally moved: "That an honorarium be given annually to the Hon. General Secretary as a slight compensation for, and in appreciation of, his services; the vote to be made at each annual meeting." The motion lapsed for want of a seconder.

STATE REPRESENTATION ON THE COUNCIL.

Mr. Chisholm, on behalf of Mr. Gilbert, moved: "That each State be given equal representation on the Council, such representation to be a Vice-President, Hon. State Secretary, and two Councillors, who shall be elected by a general vote of the R.A.O.U." A most inequitable situation had arisen, said Mr. Chisholm, in regard to representation. New South Wales had 133 members, and Western Australia 15, yet despite these figures New South Wales had only one Councillor, and Western Australia had three. New Zealand had a membership of 17, with two Councillors, and Tasmania had one representative on the Council with a membership of 22. Each State, he thought, should elect its own representatives on the Council. Under the present system members who merely paid the subscription, and took no part in the Union's affairs, were able to swamp the elections, and members in other States could nominate and elect a

State's representatives on the Council without regard to the views of those in the State, who knew their own men best.

The Chairman pointed out that members of Council were elected as Australians, not as representatives of States. The Union was governed by articles of association, but they might have these amended in the desired way. Dr. Chenery said he thought each State should both nominate and elect its own representatives.

After considerable discussion as to the method of procedure for altering the articles of association, the following amended motion was adopted: "That each State be given representation on the Council, such representation to be a Vice-President, Hon. State Secretary, and one other Councillor for each hundred members or part thereof, who shall be elected by the members in the State to which they belong."

PROCEDURE AT COUNCIL MEETING.

Notice of three motions on this subject by Dr. D'Ombrain had appeared on the voting paper. It was pointed out that they had not been received by the Hon. Secretary by the proper date, and the Chairman therefore ruled them out of order. He pointed out at the same time that the motion already carried, on the recommendation of the Council, covered almost the same ground.

ELECTION OF OFFICERS.

For the positions of Secretary, Treasurer, Curators, Press Correspondent, Assistant Secretary, Librarian, Assistant Editor, Auditors and State Secretaries, only the requisite number of nominations had been received. The Chairman formally declared the unopposed candidates duly elected.

EXPORT OF AUSTRALIAN BIRDS.

This subject, postponed from an earlier meeting, was now referred for discussion to Byfield Camp.

COLLECTION OF MIGRATION DATA.

Dr. Leach reported that Mr. Cohn, of Bendigo, had offered to collect and tabulate data on the migration of Australian birds, and the Council had accepted his offer. A notice had been published in the *Emu* asking members interested to communicate with Mr. Cohn. Several members expressed the opinion that this matter was of sufficient importance to warrant the appointment of a committee comprising members from each State, with Mr. Cohn as convenor and secretary. The matter was referred to camp for discussion.

BIRD BANDING.

A letter was received from Mr. W. I. Lyon, Secretary of the Inland Bird Banding Association, Illinois, U.S.A., asking for information about bird banding in Australia, and stating that printed papers on the subject had been forwarded. Mr. Alexander suggested that if a committee on migration was appointed this matter could appropriately be referred to it.

MATHEWS ORNITHOLOGICAL LIBRARY.

Dr. Leach stated that Mr. Mathews wished to dispose of the library accumulated by him in connection with his great work on Australian birds. It contained practically every work quoted in his bibliography, and Mr. Mathews hoped that some Australian library would secure it. It was moved by Mr. Chisholm, and seconded by Mr. Alexander: "That in the opinion of this Conference it is desirable that Gregory Mathews' library be purchased for Australia." The motion was carried.

NEXT CONFERENCE.

Following an invitation from Dr. Leach, supported by Messrs. Gates and Barrett, it was decided to hold the next conference in Victoria. The site for the camp out was left for the decision of the Victorian members. Wilson's Promontory and the Mallee country were mentioned, and the majority of those present expressed the hope that a visit to the Mallee country would be arranged. Dr. Leach stated that it would depend largely on the season.

BIRD SUNDAY.

A letter was received from Mr. Jennings advocating the holding of a Bird Sunday. It was decided to refer the question to the Gould Leagues in the various States.

PEA RIFLES.

Mr. Barrett moved: "That the sale or use of the pea rifle be absolutely prohibited in Australia, and that the several governments be asked to legislate in this direction." He said that in Victoria, the pea rifle was used by large numbers of boys, with danger to themselves as well as to others. He himself had had narrow escapes. Many deaths had resulted from the use of this weapon, and he thought it should be absolutely prohibited. Wholesale destruction of birds and animals also took place. It should be made an offence to sell, as well as to use, a pea rifle. Mr. Chisholm said it was a menace to the bird shooters as well as to the birds.

Mr. Longman pointed out that he had moved a similar resolution at the last conference held in Queensland. He suggested that the Commonwealth Government should be approached and asked to prohibit the importation of pea rifles to Australia. Mr. Barker viewed the suggestion from the necessity of protecting child life. Vested interests would have to be reckoned with in the prohibition of this deadly weapon, but children must be protected. Mr. H. G. Barnard pointed out that complete prohibition would prevent residents in the bush from using a weapon that was frequently valuable for the destruction of pests and for which ammunition was cheap. He suggested that the use of the pea rifle might be curtailed by licences. In reply, Mr. Barrett said that in Victoria all regulations had proved ineffective in practice. The motion was carried unanimously.

THANKS TO THE PRESS.

A vote of thanks to the representatives of the press was carried, on the motion of Mr. Barrett, who said that at no previous conference of the Union had such excellent reports of the proceedings been published in the local newspapers.

The conference then adjourned to Byfield Camp.

WEDNESDAY, OCTOBER 22nd (BYFIELD).

In the evening Mr. Alexander, Vice-President, took the chair, and consideration was given to several matters held over and referred to camp.

EXPORT OF AUSTRALIAN BIRDS AND ANIMALS.

After further discussion on this subject, three resolutions moved by Mr. Chisholm were carried:—

1. "This conference considers that abstracts of the minutes of the State Committees appointed to advise the Minister for Customs with regard to the issue of permits for the export of animals and birds should be exchanged among the several committees with a view of promoting uniformity of action throughout Australia."

2. "This Conference considers that no export of Australian birds for private profit should be allowed."

3. "That the Minister for Customs be thanked for the steps he has taken to prevent the export of Australian birds, but that the Union desires to draw his attention to the fact that, according to lists issued by dealers in England, some export is still taking place, and trusts he will take steps to have even stricter surveillance of the different ports of the Commonwealth undertaken in order to stop this traffic."

BIRD PROTECTION.

It was pointed out that the names of several members of the Union appeared in the list of original members of the International Museum of Comparative Oology of Santa Barbara, California, though as the list was prefaced by the statement that it included the names of a number whose election had not been confirmed by written acceptance, it was probable that the names of R.A.O.U. members had been included without their consent.

Those who had seen the first number of the "Comparative Oologist," the Journal of the International Museum, stated that members of the Museum were expected to contribute eggs of the value of ten dollars annually and that the authorities of the Museum promised not to publish lists of the eggs received from contributors for fear of prejudicing their interests. This appeared to imply that members were expected to disregard the law in order to secure rare eggs for the Museum. The following motion, moved by Dr. Chenery and seconded by Mr. H. G. Barnard, was carried:—"That it is undesirable that any member of the R.A.O.U. be a member or subscriber to the International Museum of Comparative Oology of Santa Barbara, California, U.S.A."

Attention was drawn to the fact that in all the Australian States it was now illegal to collect birds or eggs without a special permit, but that comparatively few such permits had been applied for, and it was doubtful whether all collecting members of the Union had complied with the law in this respect. After considerable discussion, the following motion was carried:—"That this Conference sets its face against the indescriminate collecting of native birds and/or of their eggs and directs the Council of the Union to inform every member that collecting cannot legally be carried out without a permit. Further that the Council advise each member that such permit should be applied for through the Hon. State Secretary of the State concerned. Also that the responsible Minister in each State be asked to communicate with the local Hon. Secretary before dealing with any application dealing with Australian birds or eggs."

The Conference then adjourned.

THURSDAY, OCTOBER 23rd (BYFIELD).

An evening session was again held with Mr. Alexander in the chair.

COMMITTEE ON RESERVATIONS AND METHODS OF MINIMISING DANGER FROM FIRES.

Further discussion took place on this subject, and regret was expressed that the Council had failed to take action on the resolution passed at the previous Conference. The following resolution, moved by Mr. Barker, and seconded by Mr. Sharland, was carried:—"That the Council be asked to secure the names of a representative of each State willing to act in this matter and that Hon. State Secretaries be asked to send the name direct to the convenor (Mr. Ashby)."

A resolution, moved by Mr. Chisholm, seconded by Mr. Jerrard, was also carried. It read as follows:—"That this Conference emphasises the importance of the work of the Committee on Reservations, etc., requests the Council to assist in expediting its efforts in every way, and recommends that an attempt be made to establish reservations in the sub-interior of Australia."*

COLLECTION OF DATA ON MIGRATION.

The further discussion on this subject resulted in the carrying of the following motion, proposed by Mr. Barrett, seconded by Mr. Musgrave:—"The Council is asked to communicate with the various States and to request them to appoint representatives to a Committee to collect data on the migration of Australian birds." It was understood that Mr. Cohn would act as secretary of the committee and as representative of Victoria.

STUDY OF BIRDS OF THE GREAT BARRIER REEF.

This subject had been raised in the address to Conference by Sir Mathew Nathan, who had asked that the Union would advise the Great Barrier Reef Committee as to the lines on which further research was desirable.

Discussion resulted in the carrying of the following motions:—Proposed by Mr. Chisholm, seconded by Mr. Gates, "That the Conference extends fraternal greetings to the Great Barrier Reef Committee, congratulates that body on the progress already made and wishes it success in the important national work in which it is engaged." Proposed by Mr. Gates, seconded by Dr. Chenery:—"That this Conference desires to leave the matter of forwarding suggestions for research to the Great Barrier Reef Committte to a Queensland Committee consisting of Prof. E. J. Goddard and Messrs. Alexander, Longman and Tryon."

RESOLUTIONS OF THANKS.

Votes of thanks to the following bodies and persons were carried:—The Government of Queensland, the Mayor of Rockhampton, the Central Queensland Native Birds Protection Association, and Mr. P. V. Maloney (Hon. Sec.), the Rockhampton School of Arts and Mr. E. K. Cleece (Sec.), the Ryan Motor Bus Co. and Mr. A. Boldemann for the loan of cars, the Fitzroy Motor Boat Club, residents of Byfield and Mr. W. Mortensen (Hon. Sec. Byfield Progress Association), Messrs. Mortensen and Richter for use of cars at Byfield, Mr. Simms for much valuable assistance at Byfield, and Mr. G. H. Barker (Hon. State Secretary) for his very successful conduct of the arrangements for the Congress and the camp-out.

SATURDAY, OCTOBER 25th (BYFIELD).

A final session was held in the evening, when residents of Byfield were present by invitation. Mr. Alexander presided and briefly explained the objects of the R.A.O.U.

---

*Since then the Commonwealth Government has proclaimed a large reservation in the Macdonnel Ranges, Central Australia, as well as one in the Cobourg Peninsula, Northern Territory.

BIRD LIFE NEAR SYDNEY.

Mr. Chaffer gave a lecture on this subject illustrated by lantern slides from photographs taken by himself. Of special interest were pictures of the female Satin Bower Bird and of a Rock Warbler at its nest.

The Chairman, in proposing a vote of thanks to the lecturer, which was carried by acclamation, urged Byfield photographers to endeavour to secure photos of the interesting bird life of the district.

BIRDS OF NORTHERN AUSTRALIA.

Mr. H. G. Barnard gave an account of some of his experiences among the birds of Cape York and the Northern Territory. He dealt specially with the Bower-birds, Rifle-birds, Manucode and Black Cockatoos, and gave interesting particulars of their habits. His address was listened to with great interest and a hearty vote of thanks was accorded him.

BIRD PROTECTION.

Mr. Chisholm followed with an address on this subject, emphasising the value of birds to the man on the land, and urging that full consideration of all the habits of a species should be given before it was condemned for injury it might cause to fruit or crops. He pointed out that if a bird worked in the interests of an agriculturalist for eleven months of the year, it was foolish to destroy it because it took some toll of a crop during one month. No other labourer would give service for a year and only expect payment during one month. He urged that some of the scrubs in the district, and especially the gigantic banyan fig tree, should be preserved, not only for their beauty and interest, but to give shelter to valuable birds.

The chairman supported Mr. Chisholm's remarks and gave a brief outline of the results of the study of the bird-life of Byfield obtained during the camp-out.

VOTES OF THANKS.

The Chairman conveyed the vote of thanks that had been carried to the Central Queensland Bird Protection Association, and took the opportunity, on behalf of the members of the R.A.O.U., to present a pair of prism-binoculars to Mr. Maloney, hon. secretary of the Association. Mr. Maloney, in acknowledging the gift, stated that it would help him to identify poachers on the reserves and other law-breakers without risk of personal contact. Mr. A. Boldemann, President of the Association, also responded, and stated that the visit of the R.A.O.U. to the district would do much to strengthen the hands of the association by showing that it had the support of influential men in all parts of Australia.

The Chairman also conveyed to residents of Byfield, and to Messrs. Mortensen and Richter the votes of thanks that had been carried. These gentlemen responded and expressed their appreciation of the entertainment provided during the evening.

Proceedings then terminated.

Congress Reports

REPORT OF THE ACTING HON. GENERAL SECRETARY.*

I am pleased to report that the affairs of the Union have continued to progress during the last twelve months. Seventy-one new members have joined during the year; 35 have dropped out through resignations, etc., and six have been removed by death, a letter of sympathy being sent the relatives in each case. The Council deeply regretted the loss of the following old, valued and esteemed members:—Messrs. J. Cross, H. W. Ford and L. B. Thorn (Victoria), F. C. Morse (New South Wales), Sep. Robinson (Queensland), and Colonel T. M. Evans (Tasmania). The members on the roll number 534, made up to October 11th, 1924, as follows:—Victoria, 195; New South Wales, 133; Queensland, 58; South Australia, 35; Western Australia, 15; Tasmania, 25; New Zealand, 17; British, 40; foreign, 35; exchanges, 19—a total of 553. We now print 575 copies, the balance being kept on hand for sales and stock.

This large membership causes your Honorary Secretary and Treasurer—who at all times are willing and only too pleased to meet the wishes and desires of members—a considerable amount of work, and it is only by careful and assiduous attention thereto that it is kept up to date, and prevented from getting into arrears. The heavy cost of printing the Union's publications is still a matter of serious concern, owing to cost of labour and material. Every economy is exercised, and the number of plates, etc., has been reduced, so that this year cost £485/5/10, against £591/12/6 last year, and £163/7/2 ten years back, pre-war times.

The financial position is sound and satisfactory, as set out in the Treasurer's balance-sheet. Owing to Temple Court being sold, and the building demolished in preparation for rebuilding, the Union's room was moved to Flinders-lane, and then again to our present address, 376 Flinders-street, which we are now occupying at a yearly rent of £52. It is estimated that the new Check List, which it is hoped will be the last word on such a matter for very many years to come, will cost the Union £150 to have published. During the year the reserve fund debenture of £100 matured, and has been re-invested.

The steps taken at Adelaide two years ago, supported at the opportune moment by the National Park Section of the Town Planning Association, of which Mr. W. F. Gates is honorary secretary, have been crowned with success. In each State of the Commonwealth there is now in active operation an Advisory

---

*The report of the Hon. Secretary, read at the annual congress, was mislaid, and the secretary has not been able to supply a copy. The report printed appeared in "The Capricornian," Rockhampton, on November 1, but its accuracy is not guaranteed.—Editor.

Committee on the exact lines proposed by our Adelaide Congress. Scientific work will be encouraged, though foreign scientific collecting in Australia should be controlled. The bird dealers in London continue to advertise shipments arriving by each incoming boat.

The New South Wales branch, in affiliation with the Royal Zoological Society, has regular meetings, and is doing very good work. No other State has yet developed a scheme for a State branch. Several proposals are before you to secure closer co-operation throughout the Commonwealth.

The official organ of the R.A.O.U.—*The Emu*—has maintained its high place amongst the leading bird journals of the world. It is open for the publication of results of scientific research on the bird life of Australia.

On June 23rd a sad loss was sustained by the R.A.O.U., when our esteemed Honorary General Secretary, Mr. J. Cross, B.A., died after an operation. One of the best of men and a fine worker, the R.A.O.U. expected much from his ripe experience and devoted labour.

In conclusion, I ask for the loyal help and earnest co-operation of all members, to further aid our aims and objects.

Z. GRAY,
Acting Hon. Secretary.

REPORT OF THE STATE SECRETARY FOR NEW SOUTH WALES.

The annual meeting of the Ornithological Section of the Royal Zoological Society of New South Wales and the New South Wales members of the Royal Australasian Ornithologists' Union was held on July 25th. Mr. P. A. Gilbert, R.A.O.U., presided.

The following report was submitted:—

The Committee have pleasure in presenting the second annual report on the Section's activities. Eleven ordinary meetings were held. At one meeting twenty members attended, while the average attendance was twelve. The membership has increased from 45 to 51. The lecturettes have proved interesting and instructive. In every instance keen discussion took place.

The first lecturette was delivered on June 15th, 1923, by Mr. A. H. Chisholm, who gave an interesting discourse on Robins. The Australian Robins, he claimed, are easily the most beautiful in the world; all are charming, and some are very remarkable little birds. Mr. Chisholm dealt briefly with the various genera and species, and discussed the seasonal movements of the *Petroica* and *Erythrodryas* birds. References to the nesting habits of Robins led him to a digression on the Cuckoos, which parasitise these birds. An animated discussion ensued.

At the meeting held on July 20th, 1923, Mr. A. F. Basset-Hull delivered a short lecture on Sea-birds, and exhibited specimens and eggs of six species of the genus *Puffinus*, and one of the genus

Pterodroma. He dealt with the distribution of each species and his lecture was full of personal observations, extending over many years, amongst this little-known group.

Mr. J. S. P. Ramsay, on August 20th, 1923, gave an instructive lecture on Nature Photography, illustrated with lantern slides. He told of the many obstacles to be faced before good results can be obtained, and exhibited many ingenious devices invented by himself to overcome these. The slides illustrated the actual taking of some of his subjects from the beginning of the operation to the final result, and in many instances showed his inventions in actual use.

On September 21st, 1923, Mr. N. W. Cayley delivered a short lecture on Pigeons, illustrated with his water-colour drawings of every known Australian species, including the two species of the genus *Globicera,* recently added to the list by Mr. G. M. Mathews. Mr. Cayley gave his personal experiences with many species, especially the Fruit Pigeons; their food and nidification, and mentioned the economic value of the Wonga and Nutmeg species.

At the meeting held on October 19th, 1923, Mr. J. R. Kinghorn read an instructive paper on "The Value of Birds," dealing mainly with their economic value to mankind generally.

Dr. E. A. D'Ombrain on November 16th, 1923, delivered a lecture on Quail, illustrated by water-colour drawings lent by Mr. N. W. Cayley, and a mounted specimen of a Plain-Wanderer from his private collection. Brief references were made to the species of which the lecturer had no personal observations, and many items of interest given on those he knew. Special mention was made of information recently received by him relating to the Plain-Wanderer; the specimen exhibited was procured quite recently from Victoria.

On February 15th, 1924, Mr. Tom Iredale delivered a lecture on Australian migrants, a group of birds of which very little is known, especially in Australia. He dealt at length with their distribution, and explained that Australia was the northern limit of the Antarctic breeding species, including Petrels and Albatrosses, a few of which were only casual visitants. He also described the routes taken by the Arctic breeding Waders on their annual migration to Australia and the Islands of the Pacific. Mr. Iredale exhibited the young of the Kentish Plover, Peewit and Ring Plover, and drew attention to their similarity to the young of the Red-capped Dotterel, Spur-winged Plover, and Hooded Dotterel. At this meeting Mr. C. Coles exhibited the eggs of the Magnificent Bird of Paradise, laid in captivity, the first known record of the eggs of this species. He also gave some interesting notes on the habits of the species in captivity.

A collection of photographs, the work of Mr. D. W. Gaukrodger, Alice Downs, Blackall, Queensland, was exhibited at the meeting held on March 21st, 1924. They were a series of unique photographs of the Emu and Wedge-tail Eagle, and practically illustrated the life-history of these shy birds.

On May 16th, 1924, Mr. Norman Chaffer exhibited a collection of his lantern slides. Mr. Chaffer is perhaps the youngest prominent nature photographer in Australia; and his work compares with that of any of the older photographers. The slides shown were of a high standard. Mr. Chaffer received the congratulations of the members present.

On June 20th, 1924, Mr. Tom Iredale delivered a short lecture on Wrens (*Malurus*) and exhibited specimens lent by the Australian Museum authorities. Mr. Iredale drew attention to the two distinct groups, the "Blues" and "Reds." He explained that in his opinion *Malurus melanocephalus* was a separate genus. He dealt principally with the literature on the group and gave some interesting theories on the evolution of the various species. A specimen of the White-backed Wren (*Malurus leuconotus*) collected by Mr. E. G. Troughton, 30 miles east of Farina, S.A., which Mr. Iredale considered re-established the species, was exhibited.

Mr. G. H. Barker, State Secretary for Queensland, was welcomed by the Section at the meeting held on May 16th, 1924. He outlined the intentions of the Queensland members regarding the forthcoming congress.

Members of the Section have reason to congratulate themselves on the success of their proposal to establish permanent camps in National Park. After protracted delays, at a special meeting convened by the Section, to which members of kindred societies were invited, a scheme was submitted and co-operation enlisted to approach the trustees of the National Park for permission to establish a station and outposts in the Park to be used as observation posts to carry out a biological survey of that area. Mr. Frank Farnell, chairman of the Trust, attended the meeting, and gave the scheme his support. He offered on behalf of the Trust the use of a six-roomed stone cottage, free of rent, situated at Gundimaiian, as headquarters, and promised help in the erection of the outposts. This offer was cordially accepted. A committee, the guests of Mr. Farnell, who proved himself an ideal host, spent a week-end at the Park, and inspected the cottage, and also made a preliminary selection of sites for outposts.

The matter will be completed immediately, and members will be able to avail themselves of the accommodation provided by the trustees of the Park.

Members are invited to help the committee by influencing their friends to join the Section, and country members are cordially invited to attend the Section's meetings, which are held every third Friday in each month.

After the report had been received and adopted, the meeting gave close consideration to several questions of policy in respect of the R.A.O.U. One of these matters was the proposed decentralisation of Council activities by giving Council members in

States other than Victoria a more definite voice in Union affairs. Another proposal was aimed at giving members generally proper scope for nominating Federal officers. A third proposal was a recommendation against the policy of composite illustrations in the *Emu*, and for the improvement of the journal in certain other respects.

The following officers were elected:—Chairman, Mr. A. H. Chisholm; Vice-Chairman, Mr. A. F. Basset Hull; Hon. Secretary, Mr. N. W. Cayley; Committee, Messrs. P. A. Gilbert (immediate past chairman), H. Wolstenholme, J. R. Kinghorn, Dr. E. A. D'Ombrain, and E. F. Pollock.

N. W. CAYLEY, Hon. Secretary.

REPORT OF HON. STATE SECRETARY FOR QUEENSLAND.

Nothing of outstanding importance can be noted for the past year as regards the Union's activities in Queensland. Lately an amending Bill to the Animals and Birds Act has just passed the Legislature, but the provisions have practically applied to animals and not to birds. Both the Central Queensland Native Birds' Protection Association and your local members of Council took early opportunity of learning the extent of the proposed alterations, and watched the passage of the Bill through the House.

A pleasing indication of how alert the Customs officers are in watching the attempts to smuggle birds out of the State, came to notice recently on the occasion of the departure of one of the China boats. A boarding inspector heard the call of one of our Parrots, and immediately whistled it up, with the result that, under a stack of timber, he discovered a collection of cages housing quite a number of our birds, which the crew had hoped would escape detection. This collection, despite the babel of sounds produced by the excited Chinese owners, was promptly confiscated.

It is pleasing to note that the Government is still actively sympathetic with the objects of the Union, and from time to time considerable additions have been made to the already large area of sanctuaries in the State. The following have been added to the list during the year:—

Back Creek
Bald Hills Soldier Settlement
Palmwoods Railway Reserve
Rock Reserve, Ingham
T. Hall's Property, Ingham
Valley of Coomera and Canungra
South Gregory River and Poison Creek
Pelican, Louisa and contiguous lakes.
T. A. Cassady's Property, Mungalla.

No information is available in the Department as to the area of these additions, but it is now computed that the total area of sanctuaries in the State is in the vicinity of 750,000 acres.-Geo. H. Barker, Hon. State Secretary.

REPORT OF THE EDITOR OF THE "EMU."

The *Emu* has been maintained at 80 pages or more per quarter. Our members are so keen and do such high-class work that there is no difficulty in finding material. The half-tone plates were limited to twelve, so as to reduce expense. The published plates now cost about £2/12/- per plate, and the letterpress about 15/- a page.

A notable reduction in printing costs has been effected by securing the services of Keating-Wood, a young firm of high-class printers, anxious to secure an introduction to scientific publication. The firm, however, is a printing firm solely, and much more work is thrown on the editors than was the case during the 20 years of publication by Walker, May & Co.

A recent promotion to higher administrative duties in the Education Department renders impossible the continuance of the crowding and rush seemingly inseparable from the production of the *Emu* by due date. After 10½ years' service as co-editor and editor, one can only regret the necessity for leaving it, and wish the journal increased success and popularity.—J. A. Leach.

REPORT OF THE CHECKLIST PRINTING SUB-COMMITTEE.

The sub-committee ordered in Adelaide and again in Hobart to proceed with the publication of the Second Edition of the Official Checklist has received proposals from Mr. Gregory M. Mathews that are being carefully considered, so that this list when printed will meet all requirements, and will, it is hoped, practically secure finality in Australian bird names. If not finality, it will probably secure uniformity of names for many years to come.

The Government printer of Victoria has quoted £142 for 1000 copies, less than 3/- a copy. Mathews has submitted an offer and a style now under discussion. His offer is £18/8/- per 16 pages. The Government printer's offer is £14/4/- per 16 pages, and our page contains 38 per cent. more than Mathews'. The Government printer wishes to receive matter when the State Parliament rises about December, so that the list should be available, say, by Easter next.—J. A. Leach, Convenor.

LIBRARIAN'S REPORT.

The library continues to grow and is in steady use by members. The want of accommodation in our present temporary quarters has hampered the extension of the library shelves, and has resulted in a considerable congestion of existing bookcases.

A notable addition is, by donation from the author, two handsome volumes of Philips' beautifully illustrated work on The Ducks of the World. Two other volumes have still to be published.

Little has been spent on binding for some time. In view of the congestion it was felt that the matter should be deferred.

F. Erasmus Wilson.

REPORT OF COMMITTEE ON RESERVATIONS AND METHODS OF MINIMISING DANGER FROM FIRES.

The names of those who are to act with the writer in this matter have not yet been furnished me. This was to be done by the Council.

I had a personal interview with the Secretary to the Minister of Agriculture in this State, and discussed with him pretty fully both issues. While admitting the theoretical correctness of both proposals, he considers that except in a very modified form, they are impossible to carry out. He admitted that without some such scheme both fauna and flora will disappear. He suggested that reserves should not be made on a large scale in connection with each newly surveyed township, but that there should be a fauna and flora survey carried out for the respective States and substantial reserves established within the area of each characteristic fauna and flora. This is the conclusion we mutually came to and which I hope, when the representation of the Committee is complete, we shall be able gradually to work out.

The difficulty with all reservations is that they harbour vermin, which the adjoining landholders like to see burnt out. The purchasers of lands adjoining such reserves when thrown open would have due notice, and have to respect these and protect them from fires passing through them, for the whole purpose of such reservations is nullified unless such exemption from destructive fires is given.

Mr. Loaring, of Western Australia, has during the recent A.A.A. Science Congress, furnished me with a schedule of W.A. reserves, of which I have made a copy, which is attached to this report.* I am now in correspondence with Mr. Loaring, and have explained more fully the main points at issue.

If the Congress desire to continue the above committee, with myself as convenor, I would suggest that the Committee be given a definite name, either that suggested above, or some other, and again urge the Hon. Secretaries in the other States, to supply the names of their representative who will act with me in the matter. A single representative in each State will be sufficient, and more workable than a larger number.—Edwin Ashby, Convenor, 8th Sept., 1924.

---

*The schedule was received but has not been printed.—Editor.

BALANCE SHEET

RECEIPTS.

To Subscriptions—		
Arrears	£46 0 0	
Current	392 1 0	
Advance	44 14 0	
		£482 15 0
,, Sales — *Emu*, £45/5/-; Covers, £6/1/6; Reprints, £11/5/8; Blocks, £2/10/-; Light, £2; Interest, £8/10/-; Keys, 5/-; Lecture, 12/-; Freight, 6/8; Index, £3/15/-; Exchange, £5/3/3		85 14 1
,, Reserve—Debenture matured		100 0 0
,, Colour Fund—		
Adventure Bay Camp	£1 12 5	
Advertisements	3 3 0	
Donations	15 14 6	
Donations by Members of Council	5 7 0	
		25 16 11
,, Trust Fund—Interest		60 0 0
Total Receipts		£754 6 0
,, Cr. Balance, 1st July, 1923—		
General Fund	£49 0 1	
Colour Fund	25 1 3	
		74 1 4
		£828 7 4

ASSETS.

To Credit Balance, National Bank		£143 18 3
,, Subscriptions—		
Arrears—Estimated good	£46 4 0	
Less prepaid	44 14 0	
		1 10 0
,, Library		450 0 0
,, Furniture and Specimens		350 0 0
,, Blocks (estimated at)		10 0 0
,, "*Emus*" on hand (estimated at)		50 0 0
,, Tent, Material, Punch, and Register		3 17 6
,, Reserve Fund—North Broken Hill Debenture 6%, 1/11/1930		100 0 0
,, Trust Funds — Commonwealth Bonds 6%, 15/12/30		1000 0 0
		£2109 5 9

Z. GRAY, L.C.A., Hon. Treasurer.

Melbourne, 1/7/1924.

YEAR ENDED 30th JUNE, 1924

EXPENDITURE.

By *Emu*, Vol. 23—Printing	£342 5 10	
Colour Plates	49 7 0	
Postage	8 14 3	
Blocks (extra)	7 7 10	
Reprints	54 3 5	
Patron's Copy	0 5 0	
		£462 3 4
,, Postage £13/11/2; Printing, £7/15/6; Exchange, £5/1/8; Covers, £4/2/6; Typing, £5/10/9; Commission, £5/4/8; "Empire Fauna," 10/-; Keys, 3/6; Freight, £1/1/1; Wreath, 10/6; Cheques, 2/6		43 13 10
,, Reserve—North Broken Hill 6% Debenture, due 1/11/30		99 10 0
,, Room Rent, £22/15/-; Moving, £10/5/-; Light, £5/10/1; Repairs, 3/6; Advertising, 4/6; Library, 5/-; Insurance, £3/4/10		42 7 11
Total Expenditure		£647 15 1
,, Trust, Dr. Balance, 1/7/1923		36 14 0
,, National Bank Cr. Balance, 30/6/1924—		
General Account	£161 9 0	
Colour Fund	1 11 2	
	£163 0 2	
,, 30/6/1924, less Trust Dr. Balance	19 1 11	143 18 3
		£828 7 4

LIABILITIES.

Nil.

Balance	£2109 5 9

Audited and certified correct—

(Signed) JAMES BARR, F.C.P.A.
,, JAMES HEDDING,
Hon. Auditors.

Melbourne, 19/9/1924.

Narrative of Proceedings at the Twenty-third Congress and Camp of the R.A.O.U.

HELD AT
ROCKHAMPTON, YEPPOON, AND BYFIELD,
OCTOBER 15th-29th, 1924,

By G. H. BARKER, BRISBANE.

A party of 27 members of the R.A.O.U. left Brisbane on the evening of Monday, October 13th, at 9.30 p.m., and travelled as guests of the Queensland Government to Rockhampton by train, with sleepers and all other comforts provided. The Central Queensland capital was reached at 4 p.m. on Tuesday, and the members were met and welcomed by His Worship the Mayor (Alderman Kingel) on behalf of the Council and by Mr. R. S. Archer (patron) and Mr. P. V. Maloney (hon. secretary) of the Central Queensland Bird Protection Association, and other citizens. Mr. C. A. Barnard and Mr. and Mrs. H. G. Barnard joined the party at Rockhampton.

Members were conveyed to their hotels, and after finding their respective rooms, they assembled at the Council Chambers. Here they listened to welcoming words from the Mayor. The Governor, Sir Mathew Nathan, replied on his own behalf, and Dr. Leach, Mr. Chisholm, and Mr. Longman, representing three different States, replied for the R.A.O.U. Several toasts were drunk, and in conclusion His Worship invited the party to visit the Botanic Gardens and be his guests at morning tea on Thursday. Mr. Cornwall, on behalf of the Rockhampton Musical Union, issued invitations to members to join the Vice-Regal party at a concert to be held that night in the School of Arts at 8 p.m. All the ladies and several gentlemen accepted, and spent an enjoyable evening.

The following morning, at 10 o'clock, His Excellency attended with members at the School of Arts, where, through the courtesy of Mr. E. K. Cleeve, who had placed the committee room at our disposal, the Conference was opened. The proceedings of the morning are detailed fully in the minutes and need not be referred to here. An adjournment was made at 12.30, and at His Excellency's invitation, the following members joined him at the Criterion Hotel for lunch at 1 p.m.:—Dr. J. A. Leach, Dr. Chenery, Messrs. A. H. Chisholm, W. B. Alexander, D. W. Gaukrodger, W. B. Barnard, W. F. Gates, and H. J. Carter.

At 2 p.m. members assembled at the post office, and a start was made by car for Fairy Bower, an interesting patch of scrub about six miles out on the south-western edge of the town, adjoining Archer Bros.' Gracemere property. Accounts of this and the other excursions made from Rockhampton will be found elsewhere in this issue.

Members of R.A.O.U. watching Water-fowl on the bird sanctuary adjacent to the Rockhampton Botanic Gardens.

Photo by D. S. A. Drain, R.A.O.U.

NATIONAL MUSEUM MELBOURNE

At 8 o'clock the same evening Dr. J. A. Leach delivered the first public lecture on "Australian Birds," illustrated with lantern slides. His Excellency presided, and introduced the lecturer, who dealt with our birds in a most interesting manner, and emphasised the economic value of the many different species. The audience was disappointing in numbers.

At the conclusion of the lecture a hearty vote of thanks was accorded the lecturer at the instance of Sir Mathew Nathan, who referred in eulogistic terms to Dr. Leach's work as a lecturer, and expressed the opinion that, in issuing his little book on Ausralian birds, Dr. Leach had done more than anyone else to promote the study of birds among the general public. He trusted that the lecturer would be long spared to carry on the good work. Dr. Leach briefly returned thanks.

On Thursday morning the party assembled at the Post Office when, as guests of the Mayor, they boarded one of the municipal trams, and proceeded to the Botanic Gardens. Here they were joined by His Excellency, and proceeded to inspect the War Memorial and the beautifully laid out gardens. The Mayor, assisted by the Curator (Mr. R. Simmons) escorted the party to the lower part of the grounds, where an uninterrupted view of the birds on the lagoon that borders this fine park absorbed the interest of the visitors. After a determined move on the part of the Mayor and some exhortation from the State Secretary, the R.A.O.U. members were dragged away from the birds and persuaded to partake of refreshments at the kiosk. Mr. Gates, in expressing the Union's thanks to His Worship for his reception, expressed his appreciation, as Chairman of the Victorian Town Planning Association, of the numerous parks and open spaces of Rockhampton. The party was then repeatedly photographed in the Palm Amphitheatre, and a return to town by tram was made in time for lunch.

Owing to the fact that the Governor had expressed a wish that the party should join him at the unveiling ceremony of the War Memorial at the Gardens at 3.30 p.m., it was decided that Conference should be resumed at 1.45 p.m. and adjourned at 3 p.m. Promptly on time His Excellency arrived, and business was resumed. At 3 p.m. the party departed per motor bus, again kindly placed at our disposal by the Ryan Motor Bus Co., with the ladies in Mr. Boldemann's car. We journeyed to the Gardens via the Range, whence a fine view of the City of Rockhampton was seen, and the party arrived in time to witness the ceremony.

On Thursday evening the Governor entertained the following members at dinner at the Criterion Hotel:—Mr. and Mrs. E. P. Mackenzie, Mr. and Mrs. G. H. Barker, Miss Geissmann, Messrs. W. B. Alexander, W. F. Gates, and H. A. Longman. Others present included Miss Nathan, the Bishop of Rockhampton and Miss Crick, the Mayor and Mrs. and Miss Kingel, Dr. and Mrs. Buchanan and Captain Turner, A.D.C. After dinner, most of the guests accompanied His Excellency to the School of Arts, where Mr. W. B. Alexander delivered a lantern lecture on Early Australian Bird Pictures, to members of the Union. Many interesting reproductions of early prints were shown, and a hearty vote of thanks was tendered the lecturer by Sir Mathew Nathan and carried enthusiastically.

At the same time as Mr. Alexander was lecturing in the School of Arts, Mr. A. H. Chisholm, in the absence of Capt. S. A. White, who at the last minute telegraphed that he was unable to attend, lectured to the pupils of Park Avenue School. With the aid of a lantern, he interested an overflow audience for an hour and a half. At the conclusion a vote of thanks was accorded the lecturer, and in company with those members of our party who were present, he was entertained at supper by Mr. and Mrs. J. S. P. Collings and the School Staff.

Friday morning at 10 a.m., saw a resumption of the conference, and a good morning's business was disposed of by 1 p.m. At 11.30 a.m. His Excellency vacated the chair and took leave of members, wishing the session all success. On the motion of Dr. J. A. Leach, who took the vacant position, a hearty vote of thanks was accorded His Excellency for his presence with the party and for his able handling of the chairmanship.

In the afternoon a visit was paid to Gracemere as guests of Mr. and Mrs. R. S. Archer. Despite the uncomfortable weather a most enjoyable time was spent. Afternoon tea was served on the verandah, and we met other members of the family, including Mr. Alastair Archer and Mr. and Mrs. Streeton. Dr. A. Chenery was entrusted with the duty of thanking our hosts, and ably expressed our delight with the visit, and trusted our hosts would long be spared to continue the good work of bird protection on the estate which Mr. Archer's father founded half a century ago. Mr. Archer suitably responded.

A start was made for home by the road that skirted the lake, and after winding through the scrub, made for the city via Fairy Bower. After stopping to inspect an eagle's nest, we had the usual difficulty in getting the party together again. On the return a halt was called just after passing Fairy Bower, and the party visited a Warbler's nest just at dusk. Mr. Chisholm, in a most deft manner, captured the little singer at home. A minute examination was made and records taken, after which the bird was liberated and the party drove on.

At night the second public lecture was delivered by Mr. Chisholm, with Mr. Alexander in the chair. The School of Arts was again at our disposal by the courtesy of the Committee, and though the audience was poor in numbers, much interest was evinced by those present. This function

Gracemere from the Homestead Garden.

Photo by D. S. A. Drain, R.A.O.U.

NATIONAL MUSEUM MELBOURNE

Photo by D. S. A. Drain, R.A.O.U. Gracemere Homestead.

NATIONAL MUSEUM OF MELBOURNE

had been billed for Captain White, and the Union's thanks are due to Mr. Chisholm for stepping into the gap, especially as he was suffering from a sore throat. Thanks are also due to Messrs. Chaffer, Chisholm, Alexander and Gaukrodger for the loan of slides for the occasion. At the conclusion of the function Mr. A. Boldemann tendered the thanks of the meeting to Mr. Chisholm, which was supported by acclamation. Mr. Barker, Hon. State Secretary, took the opportunity of publicly thanking all those who had helped to make the 23rd Conference of the Union the success it promised to be, and mentioned the Government of Queensland, for railway facilities; the Mayor and Aldermen of Rockhampton for entertainment; the School of Arts Committee and Mr. E. K. Cleeve for the use of their building; Mr. Ryan, the lanternist; the Ryan Motor Co., for providing transport; the Rockhampton press for the interest they had shown in our meetings and excursions; and last, and most important of all, the Central Queensland Native Birds Protection Association and Mr. P. V. Maloney (Hon. Sec.) for the organisation of the whole programme both in Rockhampton and Yeppoon.

On Saturday a whole day trip was made to the Olsen's Cave district per motor bus, again placed at our disposal by the Ryan Motor Co. A start was made at 9.30, and for the most part the run was over good roads, members viewing en route the progress made with the Yaamba water scheme pipeline. A halt was made at the Caves House Hotel, 14 miles out, where tea and refreshments were served, and our guide, Mr. Olsen, was picked up. A further two miles brought us to the caves. A small limestone hill is honeycombed with caverns in all directions, some of them of considerable size. The caves are quite dry and show none of the peculiar mystery formation of the southern caves; nor were many stalactites in evidence. Some interesting false vampire bats were collected for the Australian Museum, and a number of photographers operated at the entrance. A survey of the surrounding country was made by the ornithologists, and a number of interesting birds added to the list.

In the evening conference was resumed with Dr. Leach in the chair, and a lot of outstanding items were finalised. The few items left over were adjourned to the camp.

On Sunday morning two car loads of the party made a start before breakfast on a visit to Mr. Lloyd's farm on the Port Curtis road, where on a large reed-grown swamp the party, including Miss Geissmann, waded out and photographed a brolga's nest with two eggs. The party then visited the house, where Mr. Lloyd's family have a small zoo, consisting of three Native Bears, a Native Companion, an Agile Wallaby and young, a Bare-eyed Cockatoo and a cage with half a dozen kinds of Finches.

After breakfast members were the guests of the Fitzroy Motor Boat Club at an outing up the river to the 18 Mile Island.

Three launches were commissioned: The Brolga (J. Smart), Gara (C. Allen), and Valeta (A. Paterson). At seven miles a halt was made at the club grounds, and the party divided, some going to the fruit and poultry farm of Mr. J. T. Coates at Harveston, where evidence of up-to-date methods was apparent, both amongst the chickens and the fruit trees. Mr. and Mrs. Coates entertained the party with some of the farm products. The other half of the party crossed the river and visited "Old Glenmore," the homestead of Mr. A. D. Birkbeck, whose holding has been in the family for over sixty years. Here again the party were hospitably entertained, and during their ramble added a number of new birds to our list. Unfortunately, whilst ashore at this spot, the rain, which had been threatening for some time, fell in earnest, and some of the party under temporary shelter got rather damp. When the rain ceased the journey was resumed, but before our destination was reached it set in properly, and we reached the island right in the thick of it. However, it ceased for a while, but just as the billy boiled, down it came again and ruined our chances of any shore work, a start being made for home shortly after lunch. The weather cleared on the way down and some interesting observations were made, a number of nests of the Whistling Eagle being observed. The city was reached again just at dusk.

On Monday a trip was made to the Fitzroy Vale property of the Central Queensland Meat Export Co. On this occasion we rode in Rowland's new char-a-banc, doing the fourteen miles in easy time. As this was the vehicle destined to make the Byfield trip, its easy running pointed to a comfortable run for Wednesday. We reached Goose Lagoon at 10.30, and the party rambled round the area armed with their cameras. Messrs. Alexander and Barker waded out from different sides of the swamp and flushed the Geese for the benefit of the visitors. We were back in town for lunch, and at 4.30 we had packed up and settled our business and were off to the station for the Yeppoon train, on which the Railway Department had placed a special car for our use.

Yeppoon was reached at 7 p.m., and the party drafted to the different hotels. Some of the more energetic soon disposed of their luggage and a meal and visited the local picture show, which is famed for its one-man orchestra—a combination of about 43 more or less musical instruments, including an organ and a piano. Tuesday was greeted by most members with a dip in the sea, and the rest of the day was spent in rambles round the township and in preparing for the real work of the camp.

In the evening several members of the party wended their way, despite a threatening thunderstorm, to St. Faith's School, a Church of England Grammar School for Girls, which nestles at the foot of the little range running north from Yeppoon. Mr. Charles Barrett was the lecturer on this occasion, and Mr. Alexander acted as lanternist. The Rev. Bradfield filled the position

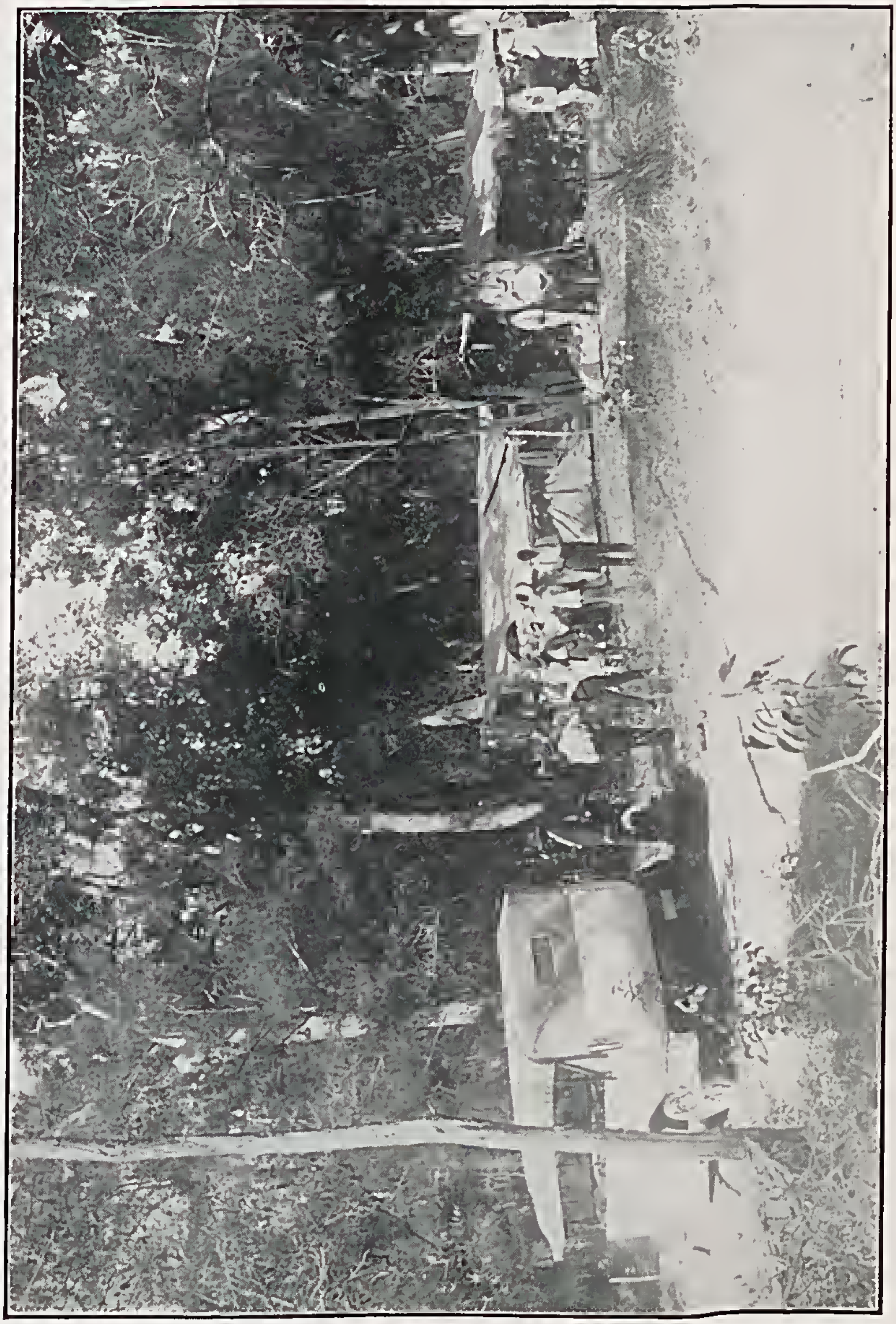


Photo by W. M. Mortensen.

The Camp at Byfield.

NATIONAL MUSEUM OF [illegible]

of chairman, and his introduction and vote of thanks were well worth listening to. At the conclusion, Miss Lilley, the Headmistress, invited the visitors to supper, while rain fell steadily. This providentially ceased soon after, and a safe return was made to town, though under lowering skies which gave every promise of further rain.

Wednesday morning was all bustle, and the motor lorry, with the luggage and bread, meat and butter, and with Messrs. Wolstenholme, Chaffer, Sharland, Barker and the cook (Andy Neven) got away at 9.30 a.m., on the 25-mile run to Byfield. The journey was most interesting, and Byfield was safely reached at 12.45 p.m. Quite a civic reception awaited us on our arrival, a representative gathering of Byfield citizens having been on the spot quite early to get everything in readiness for us. The arrangements were wonderfully elaborate and complete. A large dining shed covered by two large tarpaulins (kindly lent by the Howard Smith Co. of Rockhampton) had been erected. A long table made of petrol case timber nailed to supports occupied the centre. Along each side was a seat consisting of a piccabeen palm stem split in halves, with the round side uppermost, supported on oak legs of the regulation height. The dining room and table were decorated with flowers from the near-by farms, and with leaves of the beautiful green Cycad, *Bowenia*, which is peculiar to this district. As it keeps bright and green for weeks, it is an ideal plant for decorations.

The water was, of course, boiling, and without waiting for the main party, the luggage escort set about a square meal, which was finished off with bananas from the plentiful supply provided by our friends.

Next to the dining tent was a bigger one closed to view from the diners but open to the forest on the other side. Inspection disclosed a double row of cornsack bunks for thirty sleepers, all properly stretched and raised from the ground on a frame. Along the centre, about six feet from the ground, was a sapling rail with nails driven in every six inches, on which could be hung clothes, etc., out of the way. The building was roofed with tarpaulins kindly lent by Archer Brothers, of Gracemere. That one was old and let through sections of the only thunderstorm we had was taken philosophically by those whose bunks were wetted, and regarded as part of the programme. The cook and his stores were housed in a tent all to themselves, and the ladies had another large one in which two spring mattresses (double) mounted on bush frames, provided with mattresses, pillows and linen, accommodated four with undreamed of luxury in a camp, the other two, with patent camp stretchers, being little behind them in this respect.

The main party, numbering 23, which was transported in Dowling's char-a-banc, a really handsome and powerful vehicle, arrived about 2.30 p.m., having taken over three hours to do the thirty miles--a sufficient commentary on the state of the roads. We regretted to learn that at one spot on the road a capsize was narrowly averted purely by good luck. However, lunch was ready for them, and this, coupled with delight over the elaborate camping arrangements, soon restored everyone's equanimity. Amid much noise and some banter, positions were selected, and in the men's section bunks were soon littered with camp gear. The ladies received an invitation to tea at Mrs. Ganter's farm, which they accepted.

Those male members who had early settled down started out on their rambles at once, and at dusk most of us crossed the creek to Mr. Ganter's clearing to watch the flying foxes leaving their Byfield camp for their night's foraging. This was the most remarkable sight of the trip. For over half an hour a veritable cloud spread out over the country to the north in the direction of Shoalwater Bay, and lesser lots moved out to the east and south. It is quite safe to speak of them in millions, and when we visited the camp (or part of it, as it extends over 20 acres), we quite agreed with this guess at their numbers. We were told that they were honeybats feeding on the blossom of the native trees only, and rarely touching fruit at all. This is supported by the fact that there is practically no smell in the camp and no sign of droppings, but the noise of their quarrelling is indescribable, and when we raised numbers of them on the wing, the sound was that of fierce rushing winds.

On Friday morning, at 4.30, some of the party, including Miss Geissmann, loaded into Mr. Mortensen's motor lorry and set off to the scrub on Polka Creek to hear the early morning concert of the birds there. We got as far as the Trebone Brothers' banana farm, and were regaled with morning tea by these respected and hard-working Maltese settlers. Here we heard the Scrub-fowl, and later were shown its egg mound, which was of considerable size and was photographed for the *Emu*. In the afternoon short rambles along the neighbouring creeks were made and numbers of photographs taken. On two evenings short sessions of the Conference were held—on Thursday night business was finalised by votes of thanks to all individuals and bodies who had contributed to the success of the camp in one form or another.

On Saturday night a lantern lecture for the benefit of the Byfield folk was arranged. It had been intended to hold this as an outdoor function, but a thunderstorm in the late afternoon changed these plans and the men's dormitory was pressed into service. A sheet was hung at one end, and the bunks made excellent seats. Mr. Chaffer ran through a number of slides and gave an excellent talk on the pictures shown. Mr. Alexander acted as chairman, and Mr. Barker as lanternist, the only hitch occurring when the generator refused to act and had to be recharged with acetylene. The wait was bridged by Mr. A. H.

Chisholm (recitations) and Mr. A. Musgrave (songs). Mr. Chaffer's lecture was followed by a most interesting address by Mr. H. G. Barnard. Mr. Alexander dilated on the R.A.O.U. and its aims and methods, and Mr. Chisholm spoke on the doctrine of bird protection. Opportunity was also taken to thank the many residents and friends who had done so much for us during the Conference and camp-out, and a presentation of a pair of prism binoculars was made to Mr. P. V. Maloney, the energetic Hon. Secretary of the Central Queensland Native Birds Protection Association, to whom the success of the meeting and its arrangements were so largely due. Luckily, Mr. Maloney and Mr. Boldemann had been able to join us at Byfield for Saturday and Sunday. Both these gentlemen ably responded to the expressions of our chairman, and Messrs. Mortensen and Richter expressed the appreciation of the Byfield people for the evening's entertainment.

At the conclusion of proceedings the visitors, and these included practically the whole population of Byfield, were entertained at supper, Andy having seen to it that an abundance of tea and coffee and cake were available at the right moment. By 11 p.m. the last of the guests had departed.

Among other excursions arranged by the local people was one to Water Park Creek, when the motor lorries of Messrs. Mortensen and Richter were again at our disposal, and the Trebone Brothers ferried us across the creek to their lower farm. A visit was also paid to Mr. Richter's banana farm on the hills, whereon a magnificent Banyan tree was viewed and photographed. Pigeons could be heard everywhere in the scrub here, and many other interesting birds were noted. On another occasion a small party, headed by Mr. H. G. Barnard, explored the range at the top of this farm, but got little else than a choice collection of sandfly bites for their pains. On more than one occasion Mr. H. G. Barnard gave an indication of his abilities by climbing trees about the camp with the aid of a tomahawk and some niches for his toes.

Sunday morning saw active preparation for the return. By 9 a.m. all luggage had been packed into Mr. Noon's motor lorry, and, manned by Mrs. Israels and Miss Macdonald, and Messrs. Musgrave and Barrett, this vehicle started for Yeppoon. The balance of the party set about demolishing the camp and packing the impedimenta ready for transport to the station. By lunch time this was accomplished and we sat down to our last meal. This over, the balance of our stores was handed over to Mr. Mortensen to be distributed among our friends, and cooking utensils and crockery packed for return. At 2.30 the char-a-banc arrived and the last good-byes were said. We all packed aboard for our return to Yeppoon, which was sighted at about 4 p.m. We made for our respective places of abode, and most of us were shortly afterwards in the briny.

Monday morning saw the departure of Miss Geissmann and Messrs. Chisholm and Barrett for Tambourine Mountain, Mr. Musgrave and Miss McDonald having gone up to Rockhampton on Sunday night. Ten members made up a boat party to North Keppel Island, and had a most enjoyable and instructive time in the care of Mr. Newton Burton. A start was made from the mouth of Yeppoon Creek as soon as there was enough water to enable the bar at the mouth of the creek to be crossed. Mrs. Moloney, of Cairnside Boarding House, had packed a good hamper, and the skipper took the precaution of taking a good supply of water, as supplies on the island are precarious. To the surprise of some of us, Dr. Chenery took the tiller, and safely piloted us over the bar and out to what passes for open sea on this coast. He stuck to the post both coming and going, and it is safe to say that the little ship never motored a better course. A most enjoyable two hours was spent bouncing out against the breeze to the island, which is about three miles long by one wide. It has for the most part a high rocky shore on the sea face, and a flat sandy one on the land side. A piece of flat sparsely timbered land extends for about a hundred yards back from the beach, and then changes to woody ridges ultimately running to grass-grown hill tops running the length of the island, the gullies being filled with a species of mallee.

The southern end of the island is wider than the northern, and here the beach flat becomes clothed with *Melaleuca,* and gradually rises, capping a low ridge, and then descends again to the southern beach, this section being at one time under cultivatian.

The party explored practically the whole of the island, and over thirty different species of birds were seen, ten of which were new to our Conference list. A small camp of flying foxes was disturbed in a mangrove creek near our landing place. What they live on is a mystery as there are no bush fruits in the island. Botanically the island is interesting, with its mallee eucalypts and grassy hill tops; in the gullies the orchid *Dendrobium undulatum* was growing in profusion in scrub and rock, reaching in some places down to tide mark. Vast patches of maidenhair (*Adiantum*) were found in other gullies. As these gullies are short, steep and rocky, and quite dry, it is evident that the rainfall is both considerable and regular in this spot. Due to the efforts of the C. Q. Native Birds Protection Association the island is now a sanctuary, and it is to be hoped the bird life will increase and multiply thereon.

The return journey was commenced at 5 p.m., and with the help of her sails our craft put us ashore just at dusk, after a delightful run across the twelve miles of pseudo-sea.

Tuesday was go-as-you-please day, and small parties visited the many different good spots within easy reach of this centre. Entomologists patronised the scrub on the hill, and one party went north to the creeks and swamps about five miles away. Most of us finished the day with a dip, which is always an enjoyable experience on this grand beach—perhaps the best on the Australian coast—though it would be of no use to the surf-board fiend. The evening was spent in packing, and by 7 a.m. next day we were on the return journey to Rockhampton, with many regrets that our wonderful outing was over. For most of us a busy morning in Rockhampton (especially so for the State Secretary) was ended at noon, when in our allotted corners in the train we steamed out from Rockhampton for home, amid the good wishes of quite a number of friends on the platform, including Mr. and Mrs. H. G. Barnard and Miss Barnard, Messrs. Boldemann, Maloney, Cleeve and others. Thus ended what was, perhaps, the most successful Conference and camp-out ever held by the Union.

Rockhampton Outings

By C. L. BARRETT, C.M.Z.S., Melbourne.

Our friends had arranged a series of outings, to places of special interest in the Rockhampton district, and we have no wasted leisure hours to regret. Every excursion was pleasant, and added to the list of birds seen and identified. We had no preliminary worries in connections with these trips. All the worry had been done for us, and our memory of Rockhampton days will be always associated with the thoughtful kindness of local bird-lovers.

FAIRY BOWER.

A reserve, a few miles from the city, Fairy Bower, visited by delegates on the afternoon of October 15th, is fairly rich in bird life. There we noted nearly 30 species, and some were abundant. Channelbills (*Scythrops novæ-hollandiæ*), and Koels (*Eudynamys orientalis*) were seen, and their curious, but engaging, call notes heard, as they flew overhead. By the creek-side, two or three Spangled Drongoes (*Chibia bracteata*) were at home. Bee-eaters (*Merops ornatus*) and Varied Trillers (*Lalage leucomela*) were numerous. A Broadbilled Roller, or Dollar Bird (*Eurystomus orientalis*) gave a display of tumbling and rolling. Both the Laughing Kookaburra (*Dacelo gigas*), and the Blue-winged Kookaburra (*D. leachi*) were present. Most interesting was a "strange" species of *Gerygone* (since identified as *G. flavida*), whose nest, with eggs, was found. Some members devoted themselves to entomology, and collected a varied lot of beetles, bugs, and butterflies. Several beautiful flowering shrubs and vines and various tropical trees, including the broad-leaved Leichhardt Tree, were admired in the scrub fringing the Fairy Bower Creek.

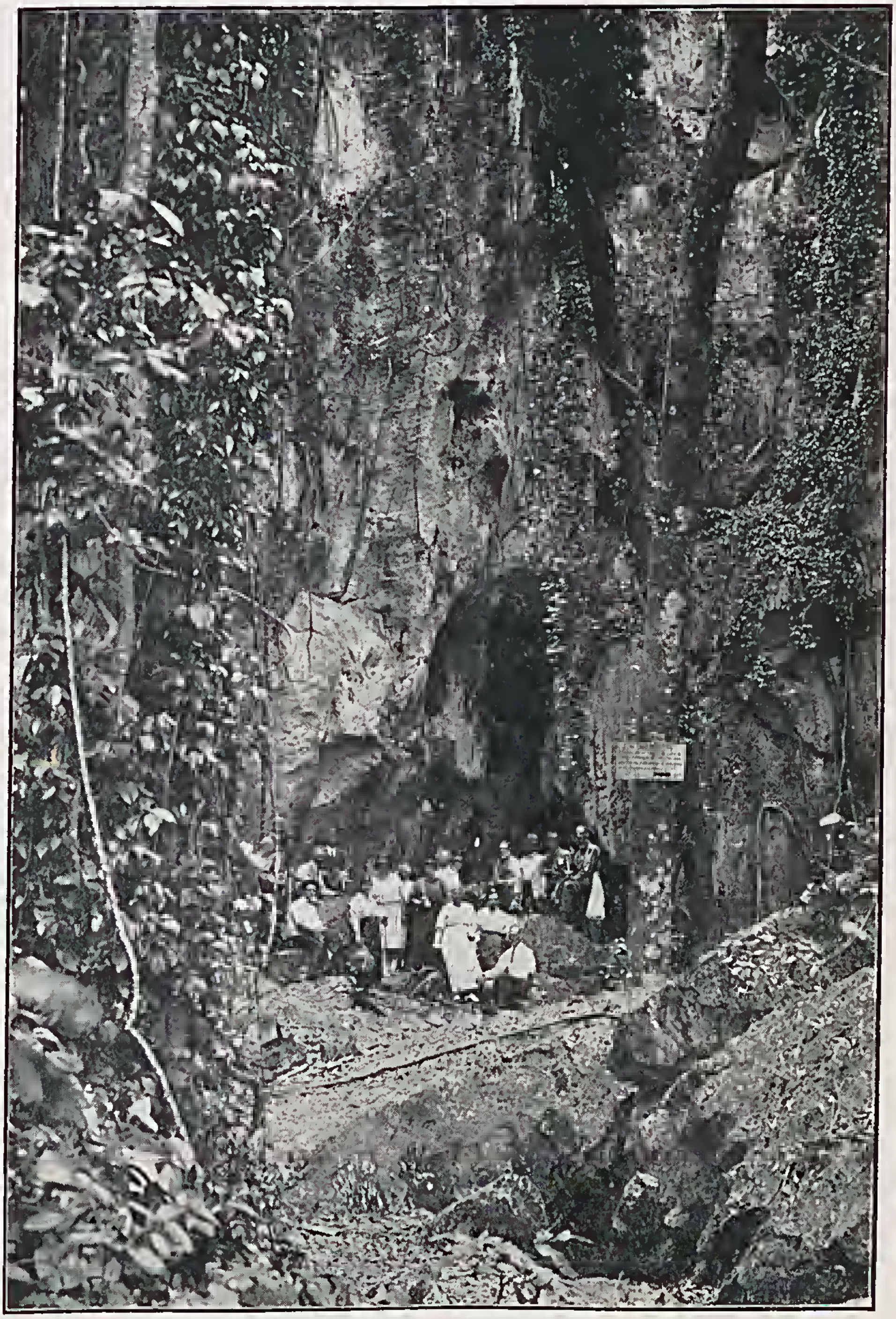
BOTANIC GARDENS.

At the beautiful Botanic Gardens on Thursday morning, October 16th, we were the guests of the Mayor, Cr. Kingel. It was a rare pleasure to wander among tropic trees and shrubs, many of them in flower; to note the gardeners' skill in grouping, and from a green rise, watch hundreds of aquatic birds on a blue lily lagoon. Rockhampton's Gardens are famous, even overseas. Among the world's tropic Botanic Gardens, they have few rivals for beauty and scientific interest. But, naturally, the birds of the long lagoon, an ideal little sanctuary, claimed the most attention. There we saw many familiar species, and some "strangers" —at least, to delegates from the south. Three Glossy Ibises (*Plegadis falcinellus*) were grouped on a tiny, reed-covered promontory. Through field-glasses we could see them, for a while, sunshine gleaming on their richly-colored plumage. Plumed Whistling Ducks (*Dendrocygna cytoni*) were swimming quietly near the further shore, three in company. Of Whistling Ducks (*D. javanica*), there were many, 100 all told, perhaps. Ducks of other species were less plentiful; but at one end of the lagoon a flock of Pelicans (*Pelecanus conspicillatus*) was fishing. The lagoon added more than a dozen species to our list; while in the Gardens we noted 18, including several Honey-eaters, the Pale-headed Rosella (*Platycercus adscitus*), the Pied Butcher-Bird (*Cracticus nigrogularis*), and the Banded Finch (*Steganopleura bichenovii*). Some of us had been in the Gardens before, several times; but custom does not stale their beauty, and we were glad to be there again, with our host and other friends, familiar with every shrub and tree, and the birds that find sanctuary in a haunt of peace within the city's boundaries.

GRACEMERE.

The very name is pleasant to write, and to speak—a musical word; and the station homestead is beautiful and of historic interest. It was a privilege, as well as a pleasure, to be guests at Gracemere, to meet the Archer family, and wander about the gardens, along the lagoon, and through the scrub a mile away. A hot afternoon, but the cool verandah of the old grey homestead gave delightful shade. The garden, too, offered shadows, and the splendour of tropic flowers: a noble Jacaranda was a cloud of lilac bloom. The lagoon, we were told, was unusually poor in bird life just then; yet we saw Stilts and Terns and Plovers, three species of Cormorant, Egrets, and Darters (*Anhinga novæ-hollandiæ*), Herons (*Notophoyx novæ-hollandiæ*), and Sea-eagles, high in air. The scrub yielded a score of species; and there we were shown a nest of the Sea-eagles, with a young bird lying, dead and maimed, on the ground below.

Carl Lumholtz, long ago, was a guest at Gracemere, and in his book, "Among Cannibals," he describes the homestead and its



The Entrance to Olsen's Caves, Rockhampton.

Photo by Miss H. Geissmann, R.A.O.U.

NATIONAL MUSEUM MELBOURNE

surroundings, and the plant and animal life which delighted him, a wandering naturalist from Norway. His picture of the homestead might be from a photograph taken yesterday, though it was, in fact, sketched nearly fifty years ago. Time has been kind to Gracemere; has mellowed its woodwork, walls and roof, and made the garden lovelier in its serene old age. Lumholtz praises the magnificent trees of the garden, *Poinciana regia*, tamarind, Brazilian Jacaranda, and bunya bunya pine (*Araucaria bidwillii*). He writes of the lagoon, or lake, with its grove of Egyptian papyrus, which we saw on October 17th, 1924, and thought of the traveller who, one day, in November, 1880, lingered there to hear the "little singer," *Acrocephalus australis*, and search for its nest, maybe. In the vine scrub near Gracemere he observed and collected, and in the vicinity, he saw the *Phragmites communis*, "probably the only plant which the Norwegian and Queensland floras have in common."

OLSEN'S CAVES.

The trip to Olsen's Caves, on October 18th, was an "all day" excursion, and it proved one of the most interesting of the Rockhampton series. The Caves were glanced at, not "explored"—they are too extensive for that—and indeed, it was stated, are only partly known to their discoverer. Out in the open we went our several ways, in two and threes, and each party returned to the meeting-place, with a little harvest of notes on things seen, and some with specimens, plants, insects, and land shells. The bird list was satisfactory, nearly 40 species, including the Regent-bird (*Sericulus chrysocephalus*)—a bower in the making was found. Many delightful small birds were here: the Spectacled Flycatcher (*Monarcha trivirgata*), the Mistletoe-Bird (*Dicæum hirundinaceum*), and the Orange-backed Wren (*Malurus melanocephalus*). Wonga Pigeons (*Leucosarcia melanoleuca*) were calling from the scrub, near the cave mouth, and there we had a glimpse of the little Green-winged Pigeon (*Chalcophaps chrysochlora*) "at home." The capture of a Frilled Lizard (*Chlamydosaurus kingii*) caused a diversion. We were to see more of this curious species at Byfield. Apparently it is rather common in the Rockhampton district.

A RIVER VOYAGE.

Sunday, October 19th, was devoted to a motor launch trip on the Fitzroy River. We were the guests of the Rockhampton Motor Boat Club, and they gave us a very pleasant outing, marred only by tropical rain. We had a stroll ashore before the first shower, one party visiting Mr. Birkbeck's place, Old Glenmore, another historic homestead. Our advent was unexpected, but we were welcomed with the kindly grace and hospitality that Queenslanders know so well how to bestow. Our host related stories of old time, when the aborigines were wild and dangerous. The rain came before our departure, and we walked to the launches over wet and clinging soil. On up the river, through shallows for a while, to a landing place, where Koalas (*Phascolarctus cinereus*) were seen, sitting serenely high in old gum trees. We went ashore to boil the billies; but were driven back to the boats by pelting rain. We dined to the music of a raindrop tattoo on the awnings, and were cheerful withal. A huge "birthday" cake was the pride of our table. It was photographed *in situ* before "division." This river voyage, despite the rain, was not fruitless. We noted more than a score of species, on the water, on rocks in the river, or ashore. Close to Rockhampton railway bridge, Lesser Golden Plover (*Pluvialis dominicus*) were seen, standing at gaze, or running along the rocks with which their colours harmonised, in the dull light.

Before breakfast on Sunday, a party of early risers motored to McLaughlin's Swamp, lured by a report that Brolgas (*Megalornis rubicunda*) were nesting there. The swamp is opposite the Messrs. Lloyd's farm, and as guides we had several members of this family of keen nature lovers. The nest was an "islet" almost in the centre of the big swamp, and before we commenced to wade, one of the birds could be seen on guard. There were two eggs in the nest. The owners did not await our coming, but retreated to the further shore, where they "danced" in the manner of their kind. Egrets, of which 40 were counted, Ibises, Spoonbills, and Plovers, were also tenants of the swamp. In the paddock and about the farm other birds were noticed. Nests of two species, the White-throated Warbler (*Gerygone olivacea*), and the Brown Honeyeater (*Stigmatops indistincta*) were discovered, the latter a foot from the ground. This little, early morning side excursion was more than worth while.

FITZROY VALE.

Our red letter day was October 20th, when we visited Fitzroy Vale, at the invitation of the Central Queensland Meat Export Company. This is cattle country, open and timbered, with large swamps or lagoons here and there. No shooting is permitted by the company, and the area is good sanctuary for birds. Goose Swamp was our objective. "You'll see the 'Magpies' there in thousands," we were assured, in Rockhampton. It seemed almost too good to be true; but if our friends said so, the geese must be there, and the journey was made with great expectations. A first glimpse of the Swamp raised our hopes higher than ever. Birds could be seen in massed formation. Soon we were in the big paddock, and, guided by a cattle man, hastening afoot towards the goal. We could not wait, but from a rise, gazed at the birds through our glasses. Pied Geese (*Anseranus semipalmata*) were there, not in thousands, but in flocks hundreds strong: in all, perhaps, we saw 1000 birds of this splendid species. Down by the edge of the swamp, thick with reeds and lotus lilies, and other aquatic plants, we had eyes, at

Goose Swamp, Fitzroy Vale, Rockhampton, with Berserker Ranges in the distance: the haunt of Pied Geese (*Anseranas semipalmata*).

Photo by C. Barrett, R.A.O.U.

first, for the geese alone. They were wary, and when some eager observers waded towards them, rose with a clamour of wings. Soon the sky was full of flying forms—a sight to quicken the pulse of a bird lover, and make his eyes gleam with pleasure. A rare and beautiful moving picture, of wild birds at home, birds "new" to most of us, at least in such numbers. To the Southerner, it seemed worth the long, weary journey from Melbourne to Rockhampton. For in Victoria, the Magpie Goose is as a tale that is told. Its old haunts, on the Murray lagoons, or the most of them, know it no more. Here, in Central Queensland, and not many miles from a city, it was wonderful to find the Pied Goose in flocks, safe from the sportsman's gun. A noble bird, standing alone, in flocks on the wing it is glorious to behold. That quiet morning on the shores of Goose Swamp, a morning of sunshine when tree shadows lured, will keep green in memory for years. The swamp, with its lilies and lesser flowers, its bird life, and the glamour of sunlight over all, is a deeply etched picture, and cannot soon fade. The geese had for neighbours Whistling, Plumed Whistling, and Grey Ducks, Coots, Moorhens, and Grebes, and other water-loving species. But in beauty their rivals were flocks of Marsh Terns (*Chlidonias leucopareia*), which circled about and among them, and perchance had nested in the swamp.

The Yeppon-Byfield Excursion

By A. H. CHISHOLM, C.F.A.O.U., Sydney.

It has to be said for the R.A.O.U. that the three excursions held in Queensland have been pleasant and instructive in their diversity. That of 1910 was to the islands of the Capricorn Group. That of 1919, prefaced by a visit to Stradbroke Island, Moreton Bay, was to the beautiful Bunya Range, in the near south-west of the State. And for further diversity of interest, the spot chosen for examination after the 1924 congress was Yeppoon, on the coast of Central Queensland, with a camp-out following at Byfield, a semi-isolated and little-known district some 25 miles to northward.

The party included almost all the members who attended the congress. In addition to those whose interests were primarily ornithological, it comprised half a dozen well-known entomologists, but it was regrettable that no botanist was present; such a naturalist would have been thoroughly recompensed by the outing.

Yeppoon was reached early in the afternoon of October 21. A small township some 35 miles from the central city, it lies behind an excellent expanse of hard, sandy beach, with a semi-circle of hills backing the settlement and reaching away sporadically north and south. Originally, these hills were largely jungle-clad, but most of the virgin scrub has been cleared to make way for banana farms. Such patches of thick vegetation as remain are rather small for true scrub birds; accordingly, we turned from these and went along a road that runs north between the hills and the coast. It was beside this road and in the scrub that clings to the sand between the highway and the ocean that some of the southern visitors got their first glimpse of certain northern birds.

How rich and strange was that glimpse in the case of such a little gem as the Sun-Bird! Although this sprite, with the sunflower breast and deep-blue throat, had been considered previously to be a purely northern species, visitors were prepared for it through the agency of a useful list compiled by Mr. Alexander; he had visited Yeppoon a few months before, and had been surprised to meet quite a number of Sun-Birds. This time they were not so noticeable, but the sweet, Goldfinch-like call could be readily detected by those who knew the species, and occasionally one or two of the little beauties were seen about clearings on the edge of the scrub. Personally, I have never seen this charming bird to better advantage than was the case in a patch of mangroves beside a banana farm near Yeppoon. A pair appeared to be seeking a nesting-site, and the radiant little lord was a bundle of colorful energy as he perched, proudly erect, on a dingy tree, chattering electrically as the tropic sun burnished his breast and throat; while his businesslike mate, equally graceful if less gaudy, searched quickly for a suitable situation. Sun-Birds frequently suspend their pendulous cradles beneath verandahs in North Queensland, and it was not surprising to find the same practice reported at Yeppoon.

Another small nectar-lover new to most of the party was the graceful *Myzomela obscura,* the Dusky Honeyeater.* A bright chattering song coming from a flowering *Eugenia* was the first indication of these birds in numbers; after that we saw an abundance of them. Indeed, none of us had ever seen the species so common as this in any part of Queensland. A third bird in which the grace of Australia's small honey-birds was well exemplified was the mangrove-loving *Stigmatops indistincta* (*ocularis*), a bird much more entitled to the title of Singing Honeyeater than the one that now bears the name. These three, with the undeniable Yellow-eared (Lewin) Honeyeater—a bird with a *penchant* for bobbing up anywhere on the East Australian coast, and particularly when you are trying to call up something shy!—were the only nectar-birds in that coastal belt.

---

*In the account of birds met with during the previous meeting in Queensland this species was incorrectly recorded from Stradbroke Island, Moreton Bay (*Emu*, XIX., p. 225). Mr. Mathews has unfortunately copied the record without comment in his Birds of Australia, vol. XI., p. 332. That the bird intended was *Stigmatops indistincta* is certain. See the reference to this species by A. S. Le Souef (*Emu*, XX., p. 144).—Editor.

It used frequently to be a matter for comment in South Queensland that where the Rufous Thrush (*Colluricincla megarhyncha*) was seen, there also might be found the Varied Lalage, or Caterpillar-eater (*Lalage leucomela*). Pseudo-jungle seems to attract them more than the rich, dark vegetation of the mountains. So in this case: the two widely-varying species were in abundance in the Yeppoon coastal belt, the curious "kar-r-r" of the Caterpillar-eater contrasting strongly with the rich melody of the Thrush. (The old name for the Varied Caterpillar-eater, "Pied," was scarcely appropriate for a bird whose black and white is reinforced by warm buff on the under-parts.) Other birds of more than ordinary interest which found hospitality in this elongated patch of scrub were the Red-crowned Pigeon and Bar-shouldered Dove (both numerous), the Green Pigeon, and the Black-faced Flycatcher (*Monarcha melanopsis*). Here, too, were seen several pairs of the Fairy Warbler, one pair feeding a young Bronze Cuckoo.

It was, altogether, a very interesting area, this mile-long patch of weather-beaten vegetation between the bay and the road. Mosquitoes, of course, did their pestiforous best to lessen its attractiveness, and green tree-ants, whose nests are as cleverly constructed as those of birds, were quite common. These ants, however, seemed rather smaller than their fellow-warriors further north; and certainly they were less ferocious than those fightable little creatures that one encounters near Cardwell.

Birds were to be found, also, along the immediate margin of the road, where lantana and grass mingled. The weather being damp, Swamp-pheasants (*Centropus phasianinus*) were in high glee, and "whooping" to their hearts' content. One of these long-tailed birds walked away from a motor car with the *blasé* air of a domestic fowl. A little Grass-Warbler (*Cisticola exilis*) was seen at close range, too, as it uttered its curiously varied, ventriloquial chirp. Once upon a time the plumage phases of this bird created a general puzzle; but we did not exercise our minds over this point so much as upon the identity of another small bird of the grass, the Red-backed Wren. Two species of this bird have previously been accepted, *Malurus melanocephalus* in the south and *M. dorsalis* in the north. The Yeppoon bird, however, might well have been either. Its bright back suggested *dorsalis*, but was scarcely brighter than certain examples of the so-called orange-backed species, which occasionally is radiant. Another beautiful bird favouring the margin of that luring road, but away from the scrub, was the Rainbow-bird or Bee-eater (*Merops*). It was while gazing casually at these graceful fliers that Mr. Alexander and I saw a White-breasted Sea-Eagle, which was coasting low, suddenly drop and pick up a stranded sea-snake in its talons.

The forest country surrounding Yeppoon was not particularly attractive, but we had an interesting hour or so among mangroves near the mouth of a tidal creek adjacent the township. Here the most notable bird was a Warbler, undoubtedly *Gerygone cantator,* the merry little fellow that is so abundant on the South Queensland coast. Song, appearance and behaviour were all akin to the southern bird. Mathews has set up a *Gerygone* from Cairns, under the meaningless name of *Ethelornis mouki,* and placed it somewhere between *G. cantator* and *G. laevigaster.* Its validity, however, seems doubtful upon consideration of the northerly extension of *cantator* and upon reference to skins in the Australian Museum.

AT THE CAMP-OUT.

With anticipations re-kindled by the sight of the Sun-Birds, the Fairy Warblers, the green tree-ants, and other tropical creatures, the visitors left for Byfield late in the morning of October 22. Two or three went ahead in the luggage lorry, leaving the main body to cover the 25 miles in a big motor charabanc. It was a handsome and an easy-running car, but the lamentable road proved almost too much for such a big vehicle. With a little less luck, indeed, the present story might have been a very different one. Twice the brakes failed and the bulky car ran backward when attempting inclines. On the first occasion it chanced to run straight instead of dropping over a culvert, and on the second occasion a rear wheel backed up on a cutting, causing the car to cant dangerously with almost the whole party packed inside. After that most of the trippers negotiated the "pinches" on foot. Our friends of Byfield certainly deserve a better road, but it would surely have been misguided generosity to advertise their need through a batch of broken necks.

Three hours of travelling through dry forest country brought the party to Byfield,. There, on the banks of a pretty creek bearing that name, stood a miniature village of canvas awaiting occupancy, and in the middle distance was a group of cordial-looking people, constituting, as it appeared later, most of the population of the district. The compliment paid the visitors by the local residents in thus attending at the outset was but an earnest of the hospitality that came later. Not content with having erected comfortable sleeping tents, with good bush stretchers, and a thoroughly adequate dining room (with the trunks of tall palms for seats), the men of the locality were always on hand to act as guides and render general assistance. In this respect the help of Messrs. W. Mortensen, F. Richter and others was invaluable. On the first morning in camp, for instance, Mr. Mortensen arrived at 4.30 o'clock with his motor lorry, and took a party of twelve visitors several miles off to Polka Creek, there to enjoy the dawn chorus of the birds. Similarly, various young men of Byfield left their fruit farms to take the naturalists to points of interest which might otherwise have

Byfield Creek.

Photo by N. Chaffer, R.A.O.U.

NATIONAL MUSEUM MELBOURNE

been overlooked, or in the reaching of which by walking much time would have been occupied.

Byfield is a district placed on the map by a scattered community of fruit farmers. Viewed from one of the mountains by which it is backed, the settlement is on a plateau eight or nine miles from the sea, and bounded on the west by more or less fortuitous mountains, perhaps a thousand feet in height at most. The northern railway line lies west of these hills. Viewed more broadly still, the whole area is practically the base of the peninsula created by Broadsound, below Mackay. North from Broadsound the coast falls eastwards with some sharpness, a fall that is stressed further north again, with Port Denison as a base. This means, of course, that Byfield is much further east, longitudinally, than the rich bird-fields of Cardwell and Cairns. The jungle of the locality, however, is not as rich as that of those northern areas, nor as that of the Macpherson Range and its spurs, in Southern Queensland. But as the district has a mean annual rainfall of 70 inches, a very fair growth of "brush" covers the tops and sides of the Byfield hills and strays down about the fringes of the several creeks that wind their way through the plateau to the sea. The plateau itself—really an undulating lowland—is covered with typical forest timber and grass-trees. No cultivation of this land has been attempted, the farms being confined to the sides of the hills (where a good deal of scrub has been sacrificed) and odd areas beside the creeks.

Altogether, then, the indications were that the area would provide an interesting field as between tropical and sub-tropical forms. A merging-point was looked upon as a possibility, but, in view of the fact that the coastal range falls away west at this point (becoming a mere depression somewhere near Jericho, on the western railway) the idea was entertained that a fairly distinct line of demarcation would be set up. It remains to be seen what opinions on these points accrued from our few days' observations. Possibly some readers will gain an idea on the question from a perusal of Mr. Wolstenholme's list; the present article is merely general and introductory.

It was a happy circumstance to discover, on initial arrival at camp, that three species of birds were nesting in the trees overhead. A pair of Blue-faced Honeyeaters had one of their own pretty basket nests (they frequently appropriate the old nests of other birds) swinging aloft in a big eucalypt; a phlegmatic Frogmouth was sitting unobtrusively beside its babes in a nest in the same tree; and Forest Kingfishers had a nest in a termites' mound close by. These species give a fair idea of the class of birds noted in the open forest generally. One of the larger Caterpillar-eaters (*Edoliisoma tenuirostris*) daily uttered its curious, cricket-like call in some eucalypts a stone's throw from the camp; but there were few other birds of the sunlight that called for particular attention. The Sun-Bird, alas, had fallen away after

Yeppoon. Perhaps its north-south line is closer to the coast.* We were not able to visit the sea in the time available, and thereby missed the possibility of seeing some interesting life in the mangroves there.

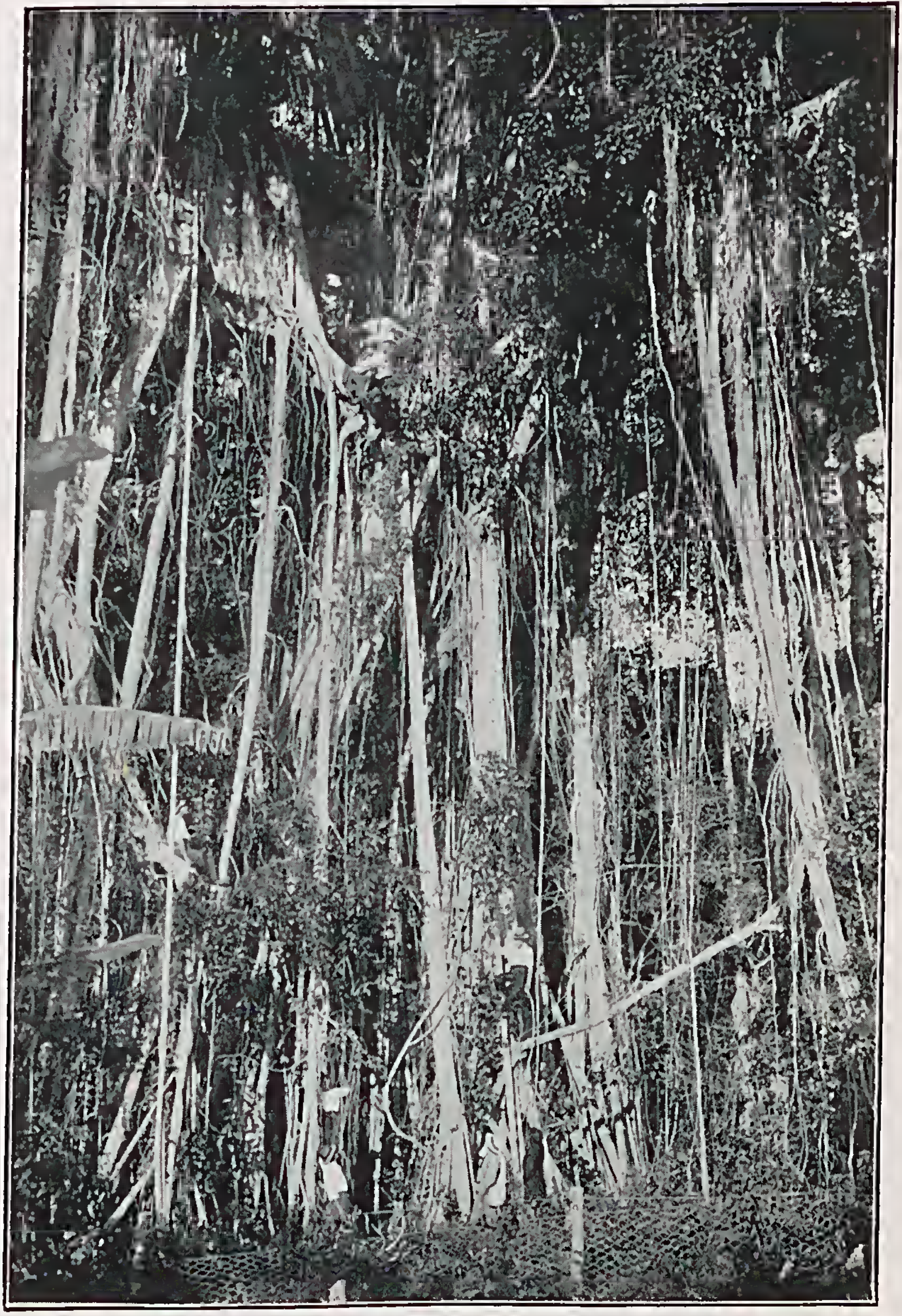
Accordingly, it was the jungle and its fringes that claimed most attention. Shortly after reaching Byfield, we were motored off to one of the show items of the district, a big banyan (*Ficus*) tree that rears itself to commanding height from the margin of a creek and on the fringe of a hillside scrub. It is a splendid sentinel, this banyan, a wonderful instance of the power and prodigality of nature in vegetation. At that spot we heard what became familiar voices during the next few days, the calls of various species of Pigeons. The district, being comparatively free of "sportsmen," is uncommonly rich in these birds, among them the beautiful King or Wompoo (*Megaloprepia magnifica*), the Red-crowned (*Ptilonopus regina*), and the Purple-crowned (*P. superbus*) Pigeons; the last-named, it will be remembered, is the bird whose female Gould took to be a different species. We heard and saw these and other fruit Pigeons on every hand; so much so that frequently an observer was disappointed on seeing a Pigeon when looking for other birds.

Among smaller birds, perhaps none was so abundant as the pretty Spectacled Flycatcher (*Monarcha trivirgata*); it, too, became rather a bore when other birds were being sought. Standing in a quiet scrub one day I gave a speculative twitter, upon which a Spectacled Flycatcher appeared from nowhere and dashed straight at the unoffending head of Mr. H. G. Barnard. Like the Rufous Thrush and Varied Lalage (which also were common here), the Spectacled Flycatcher prefers light jungle; quite frequently these three species are in company. Evidently, too, the little-known White-eared Flycatcher (*Monarcha leucotis*) is of similar tastes, though much less common. We saw only one pair of the dainty White-ears at Byfield; they were feeding young, so the eggs remain unknown still.

It is a curious thing that birds of similar feeding habits—both the Spectacled and White-eared Flycatchers subsist largely on leaf insects—should differ so markedly in numbers. The Black-faced Flycatcher also was rare at Byfield, but it is rather a denizen of the big, moss-grown scrubs. Another member of the *Muscicapidae* present was the Yellow Robin, presumably *Eopsaltria magnirostris* (*chrysorrhoa*), though its rump differed little in depth of yellow from the birds to be seen in certain areas near Sydney.

---

*Since this was written I have received information from Byfield that "quite a number" of Sun-birds have been seen there recently (December). This fluctuation tallies with what has been recorded earlier regarding the species at Yeppoon. Evidently the brisk little Sun-bird is given to swift and (possibly) capricious movements, more so than the average honey-bird.—A.H.C.



At the foot of the giant Banyan Tree, Byfield. The seven men visible in the picture give an idea of the size of the tree.

Photo by A. H. Chisholm, R.A.O.U.

NATIONAL MUSEUM, VICTORIA, MELBOURNE

The pride of Byfield—the giant Banyan Tree, a favourite haunt of Fruit Pigeons.

Photo by W. M. Mortensen

NATIONAL MUSEUM MELBOURNE

A Silvereye of whose species we could not be sure was seen about the edges of the scrub. Here, also, our southern friend the Shrike-Tit (*Falcunculus frontatus*) was seen and heard, his note differing from that of the South Queensland bird as much as that, in turn, differs from the monotone of the Victorian bird; but in colour there is no difference. Whip-birds were occasionally heard, but their calls lacked real power; they seemed to be apologetic for being found so far away from many of their southern congeners. A few of the showy Grey Goshawks whistled above the scrub, and, of course, that decent black detective—as E. J. Banfield called the Drongo (*Chibia bracteata*)—was there to cackle a warning if the Goshawks misbehaved. It was good, too, to hear the clear "walk to work" of the Noisy Pitta (*P. strepitans*) a few times, and to speculate upon a queer whistle from another scrub bird, which later proved to be a Mountain Thrush (*Oreocincla*).

Possibly, however, the most interesting birds of the locality (from the point of view of distribution) were the Jungle Fowl (*Megapodius reinwardti*) (*tumulus*), the Fairy Warbler, and a Bronze Cuckoo. The Jungle Fowl is the "Scrub-hen" of local people, a term that has reference to the Log-runner (*Orthonyx*) further south. Previously, the most southerly record for the Megapode was the neighbourhood of Mackay and on the Whitsunday Islands, off Port Denison; so that the presence of the remarkable northern mound-builder at Byfield was a matter for rejoicing. Several nesting-mounds were found, one of these, on a mountain plateau, being fully eight feet deep and twenty feet in diameter. A tremendous amount of work had been done by the birds in sweeping debris together from the rather dry ground beneath a tangle of vines—after which they fully deserved the respite from tiresome brooding which was afforded them by their great natural incubator. Undoubtedly Byfield is the southern limit of the Jungle-Fowl; settlers say the bird is not found in scrubs a few miles south. But whence did it come, and whither is it going?—north or south?—these are nice puzzles.

The Fairy Warbler and the Bronze Cuckoo have been mentioned elsewhere. The larger Cuckoos were not seen nor heard at Byfield, the only ones identified being the Narrow-billed Bronze and the less-known Rufous-breasted species. A queer little call, strongly suggestive of a grass insect, and quite unlike that of any southern Cuckoo, led to the Rufous-breast being seen: it was identified as *Lamprococcyx russatus* by Mr. Alexander, who had seen a specimen calling outside his window when resident in Central Queensland. This is not the place to go into details regarding the perplexity that has long existed concerning northern Bronze Cuckoos, but it may be accepted as definite that *L. russatus* and *L. minutillus* do differ specifically, and that the former comes well down the east coast. Its egg resembles that of the Bronze Cuckoo (*L. plagosus*), but as the latter was not heard at

Byfield, it seems certain that an egg found in a Yellow Warbler's nest was that of *russatus*. Further north it has been found to parasitise the *Gerygones* to an embarrassing extent.

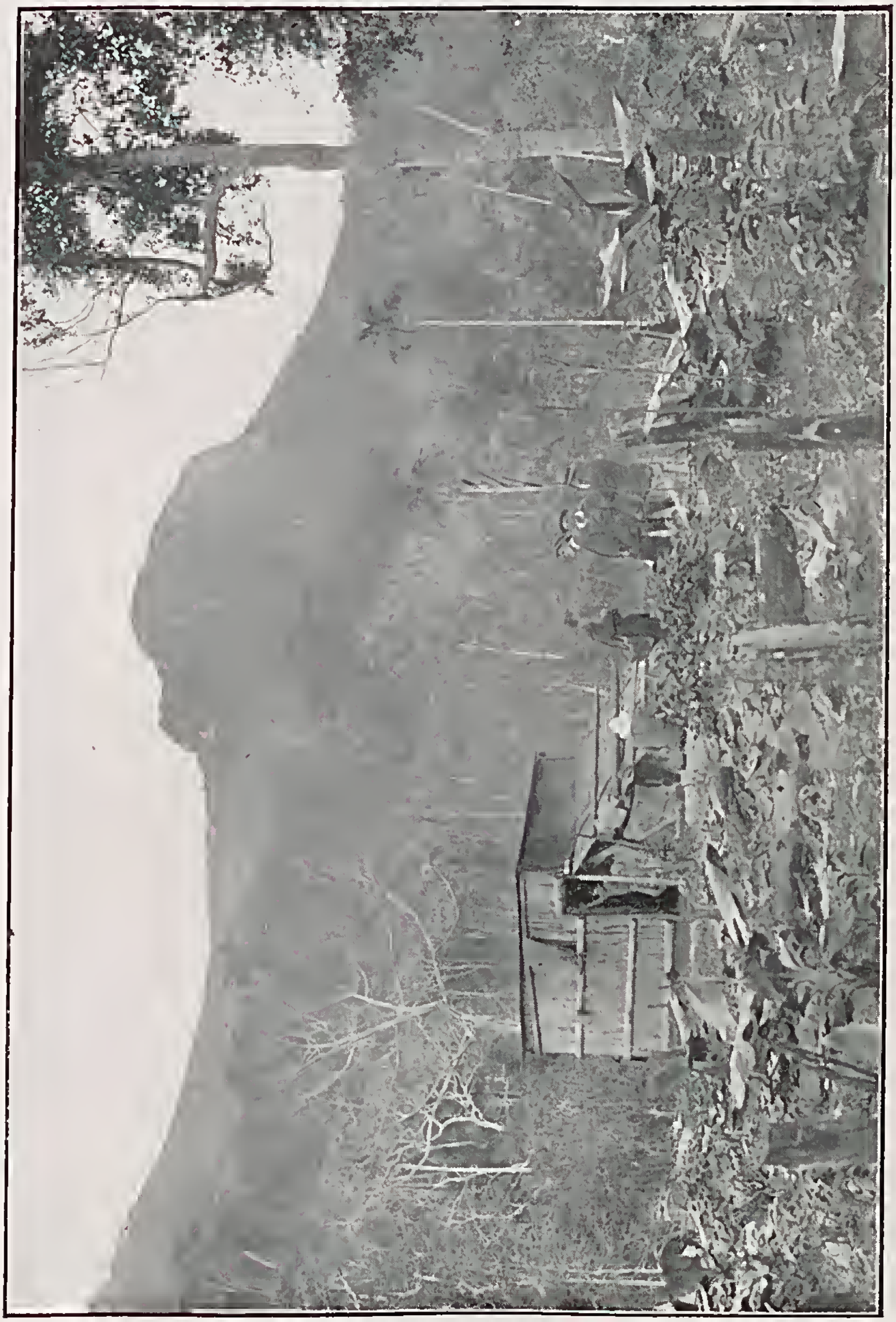
We had not been long at Byfield when we began to be impressed by the birds that were absent as much as by those that were present. It was almost uncanny, for instance, to be in scrubs all day without hearing the familiar notes of the Golden-breasted Whistler (*Pachycephala gutturalis*). Almost as striking was the absence of the Yellow-throated Scrub-Wren (*Sericornis citreogularis*), for its smaller, large-billed relative (*S. magnirostris*) was quite abundant. Moreover, what had become of the Rifle-Bird, the Regent Bower-Bird, the Satin Bower-Bird, the Cat-Bird, the Spine-tailed Log-runner, and the Pale-yellow Robin (*Poecilodryas capito*), all of which are familiar in the jungles of South-eastern Queensland? That the Lyre-Bird should reach that far was not to be expected; and yet it is just as strong in wings and feet as the Pitta. The Log-runners, too, are confined to the ground, but surely the southern bird is just as fitted for travel as the Pitta, and the northern species as capable as the Megapode. The Cat-Bird and Bower-Birds, similarly, cannot be excused on the ground of food supply, for they subsist largely in the manner of Fruit Pigeons. However, there is the break, with the meaning thereof remaining to be written.*

Little more need be said here of other features of the Byfield district. Its creeks are made beautiful by groves of very tall palms, and charm is added botanically by the presence of large quantities of a graceful cycad (*Bowenia spectabilis*). This is the species named a few years ago by Professor Chamberlain, of America, who went to Byfield to see *B. serrulata*, and found a new species instead. Three beautiful orchids were common—*Dendrobium canaliculatum* festooning the tea-trees with white, purple and gold flowers, and the golden-brown blooms of *Cymbidium suave* and *C. canaliculatum* showing out freely among dead timber.

Lepidoptera and insects generally, remain to be worked out from the good collections made; but the securing of many new specimens as well as extensions of ranges is certain. Snakes were not numerous. One or two black ones were seen, and a death adder was shot (by lamplight) close to the camp. Bats offered several species, with the persistent fruit-bats, or flying foxes, occurring in myriads. A mile or so from the camp was a colony of these unpleasant creatures that must have covered every tree over a square mile. When disturbed, the whirring of

---

*When considering this subject it is important to note that Broadbent (1888) found the Satin Bower-bird and Regent-bird on the Berserker Range, near Rockhampton, and the Golden-breasted Whistler, Pale-yellow Robin, and Rose Robin in scrubs beside the Fitzroy River, break is a narrow one.—A.H.C.



Mt. Parnassus, Byfield, seen in the early morning from banana plantation at the head of Polka Creek.

Photo by Miss H. Geissmann, R.A.O.U.

NATIONAL MUSEUM MELBOURNE

their wings (to say nothing of their abominable screeching) was like the thundering of distant surf or the passage of a high wind through trees. At sundown each day the "foxes" passed over our camp on their way to feeding-grounds; their numbers then seemed to run into millions. A much more heartening sight was the presence of a fair number of koalas (native bears) in trees about the locality.

The conduct of the camp throughout was excellent. A cook had been taken out from Rockhampton, and "waiters" were arranged by roster, with the energetic G. H. Barker giving general oversight as secretary. On Saturday night, October 25th, we gave a lantern entertainment, lecturettes, etc., to the good people of Byfield, and on the following day the return journey to Yeppoon was made. There the party split, chiefly into two bodies, one to visit the Keppel Islands and the other to spend a few days on Tambourine Mountain, south-east of Brisbane.

Visit to North Keppel Island

By M. S. R. SHARLAND, R.A.O.U., Hobart.

The Keppel Islands, consisting of North and South Keppel, and many rocks and islets, lie some ten or twelve miles off the coast opposite Yeppoon, in Keppel Bay. The day following the return from camp at Byfield a party of twelve set out in a fishing boat for the northern island in the hope of adding to their list of birds species that frequented the open sea and the shore. It was a warm, sunny day, and the voyage to the island was delightful. Many Wedge-tailed Shearwaters skimmed the ocean and came close to our boat, while several Pied Cormorants were observed en route. We landed in a small bay towards the northern end of the island on the beach of which was seen a solitary Pied Oyster-catcher, which flew away uttering his piping note, while a Silver Gull and several Crested Terns were some distance out.

North Keppel Island is approximately five miles in length by about one and a half miles in width at the widest part, and is covered with a thick growth of low eucalyptus scrub, palms, and a little mangrove. On the ocean, or eastern, side, the hills and the tops of the cliffs are bare of vegetation except thick coarse grass, well over a person's ankles, in which Pipits and Brown Quail were flushed. Members explored almost every part of the island in the four or five hours at their disposal, and found several birds nesting, including the Boobook Owl, Bar-shouldered Dove, White-headed Sea-Eagle, Quail, Forest Kingfisher, and others. One of the party captured a young, but almost full-grown Stone-Plover, who was made to pose for enthusiastic photographers. On a rock jutting out into the sea a disused nest of a pair of Osprey was found, and the birds were flying overhead.

Sea-Curlew and Sandpipers were observed on the muddy flats around the coast, but there was a lack of shore birds generally. The most characteristic bird of the island was the Varied Honey-eater (*Meliphaga versicolor*), which crowded the trees and made a great din. Strange to say, although so numerous on the island, they were not observed on the mainland. Pheasant-Coucals, Bee-eaters, Friar-Birds, Brown Hawks, White-fronted Herons, Australian Goshawk, Mangrove Bitterns, Chestnut-eared Finches, Crows and Reef Heron were among the others observed.

The return journey to Yeppoon was made in the evening, and just before the sun had disappeared behind the hills, a stately Frigate-Bird sailed high above our boat and was lost to sight in the dusk. Many Crested Terns passed us, flying north.

Notes on the Birds observed during the Queensland Congress and Camp-out, 1924

By H. WOLSTENHOLME, R.A.O.U., Wahroonga, Sydney.

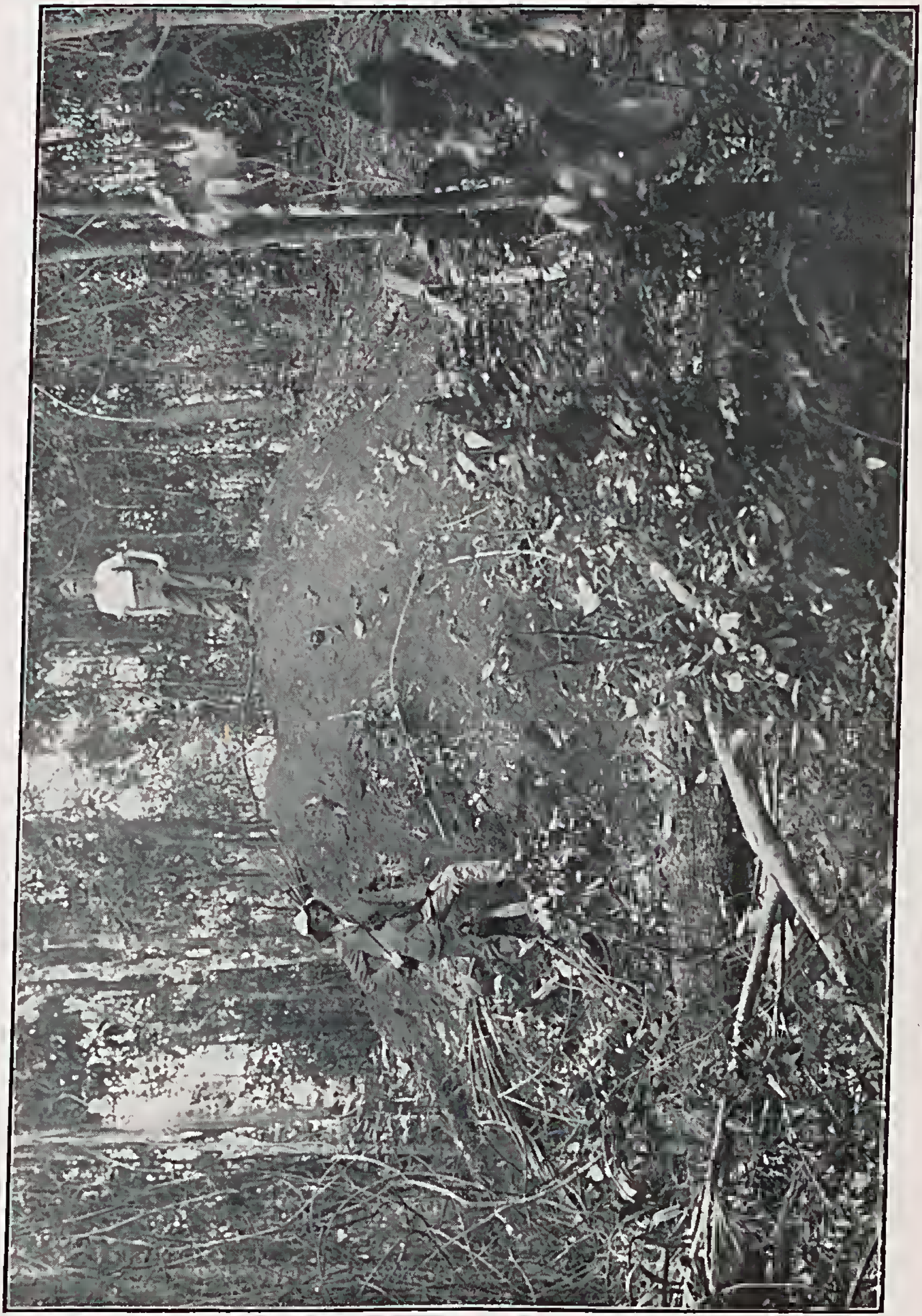
The birds observed were those of three localities:

1. ROCKHAMPTON and the neighbouring places to which outings were made during the period of the Congress.
2. YEPPOON, a seaside resort about 30 miles from Rockhampton, where a stay of a day or two was made on our way to and from Byfield. North Keppel Island was visited from Yeppoon.
3. BYFIELD, the place of the camp-out, a small banana-growing settlement, 25 miles north from Yeppoon, with palm-fringed creeks and banana plantations extending up into the thick scrub of the hillsides.

Members helped me greatly with these notes by reporting their observations. We were very fortunate in having Mr. H. G. Barnard with us at the camp and on the various outings, and we profited much from his long experience and wide knowledge of the birds of Northern Australia.

One hundred and eighty-two species were identified, and nests of 42 different species were seen.

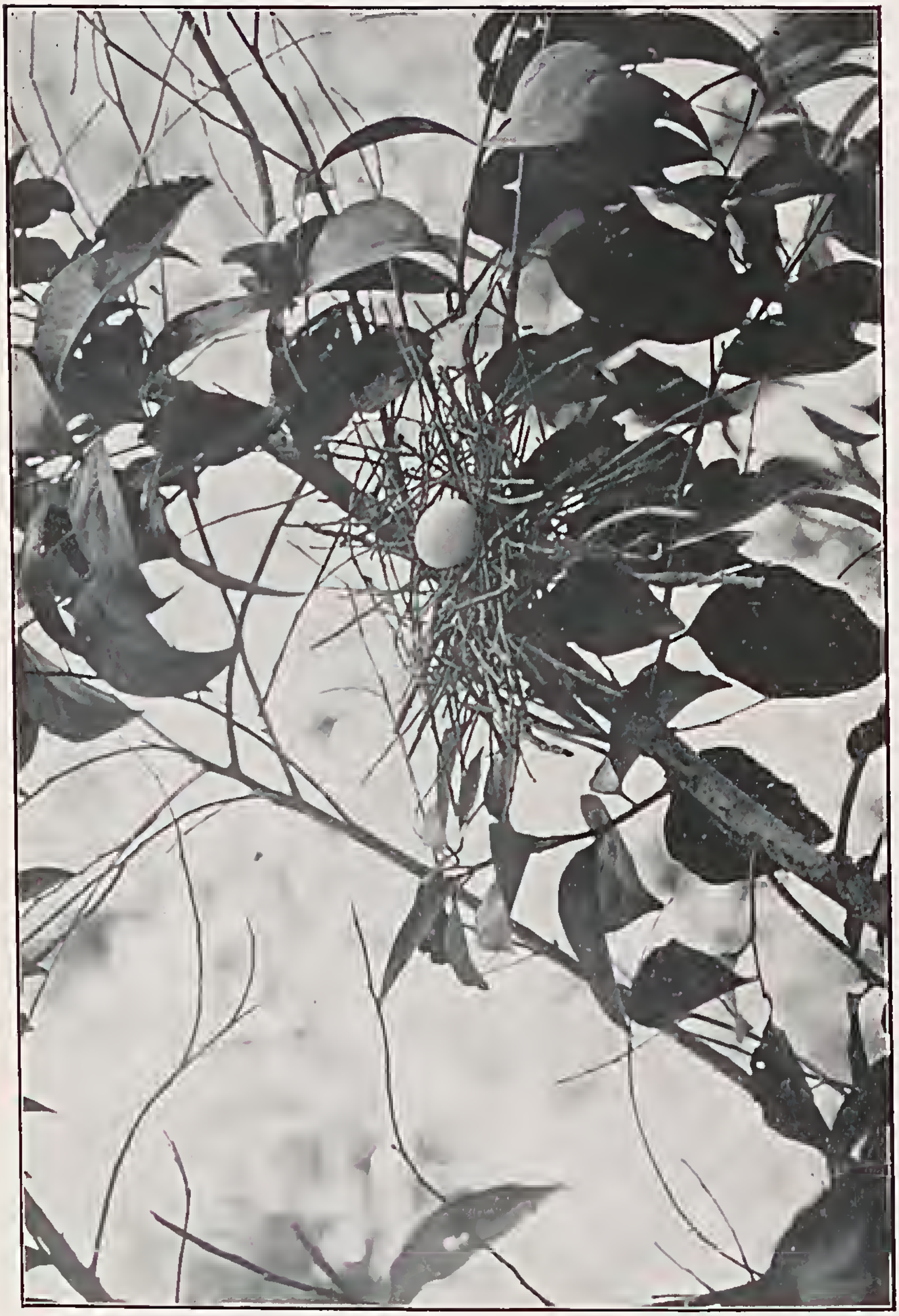
Megapodius reinwardt. Scrub-Fowl.—These birds seem to be fairly plentiful in the Byfield district. In the thick scrub on the hillsides several of the huge steep-sided, small-topped mounds in which the eggs are deposited were shown to us—some that had been in use quite recently. A large lizard came out of a hollow in one mound, which gave us expectations of finding eggs, but though our guides dug deeply and thoroughly, no egg was found. The mounds are used and added to each year. This particular one was nearly 10 feet high and about 40 feet round the base, and has been in use four or five years.



Nesting-mound of Scrub-fowl (*Megapodius reinwardt*) at Byfield.

Photo by Miss H. Geissmann, R.A.O.U.

NATIONAL MUSEUM [illegible]



Nest of Red-crowned Pigeon (*Ptilonopus regina*) at Byfield.

Photo by N. Chaffer, R.A.O.U.

The birds themselves are not easily seen. Some members heard a little of their cackling early one morning at Polka Creek, but Mr. Chaffer was the only one to see any birds. Spending a night on Mr. Mortensen's banana plantation among the hills, he went out very early in the morning with the owner and his dogs. At the sight of the dogs the birds leave the ground for the low branches of trees, where, sitting quietly, they are easily observed. We were informed that they do much damage to the growing bananas by eating a little bit of each banana at the base of the bunch. Some of the settlers were calling the birds "Mallee-fowl" or "Malay-fowl."

Alectura lathami. Brush Turkey.—Though considered plentiful at Byfield, this bird was seen once only—cornered by a wire fence. It had to take to flight when we came up close to it. Some nesting mounds were seen. They were smaller and less conical than the Scrub-Fowl's mounds. The Turkeys were said to be more destructive to the bananas than the Scrub-Fowls. Another bird was seen in the scrub at Olsen's Caves, Rockhampton, where several old mounds of this species were also noted.

Synoicus australis. Brown Quail.—These birds were reported at Byfield, and were fairly numerous in the long grass on North Keppel Island, where a deserted nest was found.

Turnix varia. Painted Quail.—Heard by Mr. Chisholm and Dr. Chenery at different times near the camp at Byfield.

Turnix velox. Little Quail.—Mr. H. G. Barnard and Dr. Chenery reported these birds at Byfield.

Ptilonopus regina. Red-crowned (Swainson's) Pigeon.—This Pigeon was, perhaps, the one most often seen and heard. They were numerous at Byfield, and also in the coastal scrub at Yeppoon. A nest, which consisted of a few sticks, through which the single egg could be easily seen, was found by Miss Geissmann not very high in a small tree on Byfield creek near the camp, and the plumage of the sitting bird was much admired. Another nest, also containing a single egg, was found a little further away.

Ptilonopus superbus. Purple-crowned Pigeon.—Observed at Byfield but much less frequently than Swainson's Pigeon.

Megaloprepia magnifica. Wompoo or King Pigeon.—These birds were in the big trees among the Byfield scrubs, but were very hard to see in the leafy tops of the trees. Occasionally only could a bird be seen well.

Columba norfolciensis. White-headed Pigeon.—Some of the residents were erroneously calling this bird the Torres Strait Pigeon; others knew it by the name of Cook Pigeon. It was numerous about Polka Creek, Byfield, where many were seen on an early morning excursion.

Macropygia phasianella. Pheasant Pigeon (Brownie).—Numerous in the Byfield scrubs, where the double "coo," sometimes, followed by a succession of shortening "coos," in cadence, became very familiar. Miss Geissmann was adept at imitating the notes, and a puzzled bird on Polka Creek was lured by her skill from the scrub into a tree in the banana plantation under which members of the party were standing.

Geopelia humeralis. Bar-shouldered Dove.—Very plentiful in the scrub at Yeppoon, where its call, "Hop off, hop off," was continually heard. Mr. W. B. Barnard reported a nest. Another nest was seen on North Keppel Island, where the birds were common.

Geopelia placida. Peaceful Dove.—Heard and seen in most places. A nest was in use in one of the street trees at Rockhampton.

Chalcophaps chrysochlora. Green-winged Pigeon.—A few were seen near Rockhampton—at Gracemere and Olsen's Caves. At Byfield they were fairly common and were frequently flushed from the ground in the scrub along the creeks.

Leucosarcia melanoleuca. Wonga Pigeon.—Not common. Heard calling at Olsen's Caves and near the banyan tree at Byfield.

Gallinula tenebrosa. Black Moorhen.—Many on Goose Swamp, Fitzroy Vale, some on the banks of the Fitzroy River, and several on Fairy Bower Creek, Rockhampton.

Porphyrio melanotus. Eastern Swamp-Hen.—In great numbers on Goose Swamp, and numerous on the lagoon at the Rockhampton Botanic Gardens.

Fulica atra. Coot.—Plentiful on Goose Swamp and the Botanic Gardens lagoon.

Podiceps ruficollis. Little Grebe.—Numerous at Gracemere, the Botanic Gardens lagoon and Goose Swamp.

Podiceps poliocephalus. Hoary-headed Grebe.—Mr. Barker, who walked further round Goose Swamp than the rest of the party, reported seeing this bird.

Puffinus chlororhynchus. Wedge-tailed Shearwater.—Flocks of this species were seen on the voyage from Yeppoon to North Keppel Island gliding over the water and circling round in the air, often coming close to the boat. We were informed that they did not breed on the Keppel Islands, the nearest breeding colonies being on the Capricorn Group.* As we returned from the island at dusk we passed parties of the Shearwater resting on the water and disturbed some of them. It appeared as if they were settling down for the night, and were not intending to fly back to the Capricorns, where we had supposed their mates were awaiting them in the burrows.

Phalacrocorax ater. Little Black Cormorant.—Numerous at Gracemere and on the lagoons about Rockhampton.

Phalacrocorax varius. Pied Cormorant.—Common on the coast at Yeppoon and North Keppel Island, also seen at Gracemere.

Microcarbo melanoleucus. Little Pied Cormorant.—Plentiful at Gracemere and on the lagoons about Rockhampton.

Anhinga novæ-hollandiæ. Australian Darter.—Many were seen at Gracemere sitting on posts or swimming in the water. The almost white neck of the female birds was conspicuous. A few were to be seen on most of the other lagoons about Rockhampton.

Fregata ariel. Lesser Frigate-Bird.—A single bird was seen sailing high overhead about dusk as the mainland was approached on the return from North Keppel Island.

Pelecanus conspicillatus. Australian Pelican.—Observed, but not in great numbers on the lagoons at Rockhampton Gardens, Gracemere and Fitzroy Vale.

Chlidonias leucopareia. Marsh Tern.—A few of these Terns were flying over Gracemere, and a small flock was disturbed from among the reeds on Goose Swamp, Fitzroy Vale. They looked very pretty circling above the Pied Geese.

Hydroprogne caspia. Caspian Tern.—A pair were circling over the water at Gracemere. A few were about the seashore at Yeppoon.

Sterna bergii. Crested Tern.—Plentiful at Yeppoon. A pretty sight one bright day was a company of a hundred or more of these birds resting together on the beach in various graceful attitudes, with a pair of Caspian Terns a little way off and also a few Sea Curlews and Silver Gulls. They were also numerous on North Keppel Island, and on the return voyage from the island in the evening many small parties passed the boat on their way to roost on the outlying rocks.

---

* See the account of the birds observed on the Capricorn Group by members of the R.A.O.U. (*Emu*, Vol. X., p. 202).—Editor.

Larus novæ-hollandiæ. Silver Gull.—On the beach at Yeppoon these could always be seen.

Haematopus ostralegus. Pied Oyster-catcher.—One or two were on the sandy beaches of North Keppel Island.

Hæmatopus unicolor. Black Oyster-catcher.—A number of these birds were on the rocky portion of the beach at North Keppel Island.

Lobibyx novæ-hollandiæ. Spurwing Plover.—Observed in many swampy localities.

Pluvialis dominicus. Lesser Golden Plover.—These birds were seen on the Fitzroy River and on the sandspits at the entrance of a creek into the sea at Yeppoon and at other places.

Charadrius ruficapillus. Red-capped Dotterel.—Many were seen on the beach at Yeppoon. At one spot a pair behaved so queerly that it seemed certain their nest was handy.

Charadrius melanops. Black-fronted Dotterel.—Observed on the shore of the lagoon at Gracemere and in other localities near Rockhampton.

Himantopus leucocephalus. White-headed Stilt.—A few birds were seen on the lagoon shore at Gracemere.

Numenius cyanopus. Eastern Curlew.—Frequent about Yeppoon, on the beach and in the estuaries of creeks at low tide, also on the shores of North Keppel Island.

Numenius phaeopus. Whimbrel.—Observed on the rocks and beach at Yeppoon.

Limosa lapponica. Bar-tailed Godwit.—A few were seen on the sea-shore near Yeppoon by Messrs. Alexander and Sharland.

Heteroscelus brevipes. Grey-rumped Sandpiper.—A pair were seen on the rocks on North Keppel Island, and a single bird on the rocks near Yeppoon by Mr. Alexander.

Pisobia acuminata. Sharp-tailed Stint.—A single bird was observed on the shore of the lagoon at Gracemere.

Irediparra gallinacea. Lotus-bird.—A few pairs were seen near the edge of the Goose Swamp, Fitzroy Vale. The bright, rosy comb was conspicuous as the bird moved about on the swamp vegetation and among the large blue water-lilies. As they flew from one place to another, they sometimes gave a rather shrill, rattling call.

Burhinus magnirostris. Southern Stone-Plover.—These birds were heard during the night at camp and several were seen among the tussocky grass of a small flat a short distance away. They were also seen on North Keppel Island, where a young bird just fledged was captured and photographed.

Orthorhamphus magnirostris. Shore-Plover.—Mr. Barker saw a pair of these birds on the beach at North Keppel Island, and later Mr. Alexander saw a single bird flying along the other coast of the island. This bird settled on the mud-flat and a good view of it was obtained. When flying it looked grey with much white in the wings, reminding one of a Wood-Duck. It uttered a whistling note. There seems to be no previous record of the occurrence of this species south of Mackay.

Megalornis rubicunda. Brolga (Native Companion). — Before breakfast one morning a few of us motored to McLaughlin's Swamp, a little way from Rockhampton, where a pair of Brolgas were nesting. The nest, which contained two eggs, was on a tiny islet in the middle of the swamp. From the road we could see the neck of the sitting bird rising from among the reeds, the red patch on the head looking like some strange flower. Luckily the swamp was small and its water not deep, and we could wade out to the nest without much inconvenience. The two eggs were decidedly different in shape, one being fairly round, the other somewhat elongated. The boy who brought the information as to the nest and acted as guide was anxious to know whether one would produce a male and the other a female, and if so which was which. None of the learned ornithologists present could answer these simple questions. As we approached the nest the two birds retired slowly to the further shore, and there did some very graceful dancing —sometimes leaping into the air, both feet over a foot from the ground.

Threskiornis molucca. White Ibis.—Seen on several of the swamps near Rockhampton. also among the mangroves on the banks of the creeks near Yeppoon.

Threskiornis spinicollis. Straw-necked Ibis.—Common about Rockhampton, especially about the swamps.

Plegadis falcinellus. Glossy Ibis.—Three of these birds were seen on the lagoon adjacent to the Rockhampton Botanic Gardens.

Platalea regia. Royal Spoonbill.—A few of these birds were seen on the Botanic Gardens lagoon and on the swamp containing the Brolga's nest.

Platalea flavipes. Yellow-billed Spoonbill.—A number of these birds were seen on the Botanic Gardens lagoon; some were also recorded at the brolga swamp and the Goose Swamp, Fitzroy Vale.

Xenorhynchus asiaticus. Jabiru.—The small party that journeyed from Yeppoon to Byfield on the motor lorry with the luggage observed one of these quaint-looking birds not far from the road in a swampy paddock on a farm called "Bonnie Doon." The lorry was stopped and we noted the bird's light plumage, the glossy black plumage of the head and neck and the big black bill until at length the bird stalked slowly away.

Egretta garzetta. Little Egret.

Egretta intermedia. Plumed Egret.

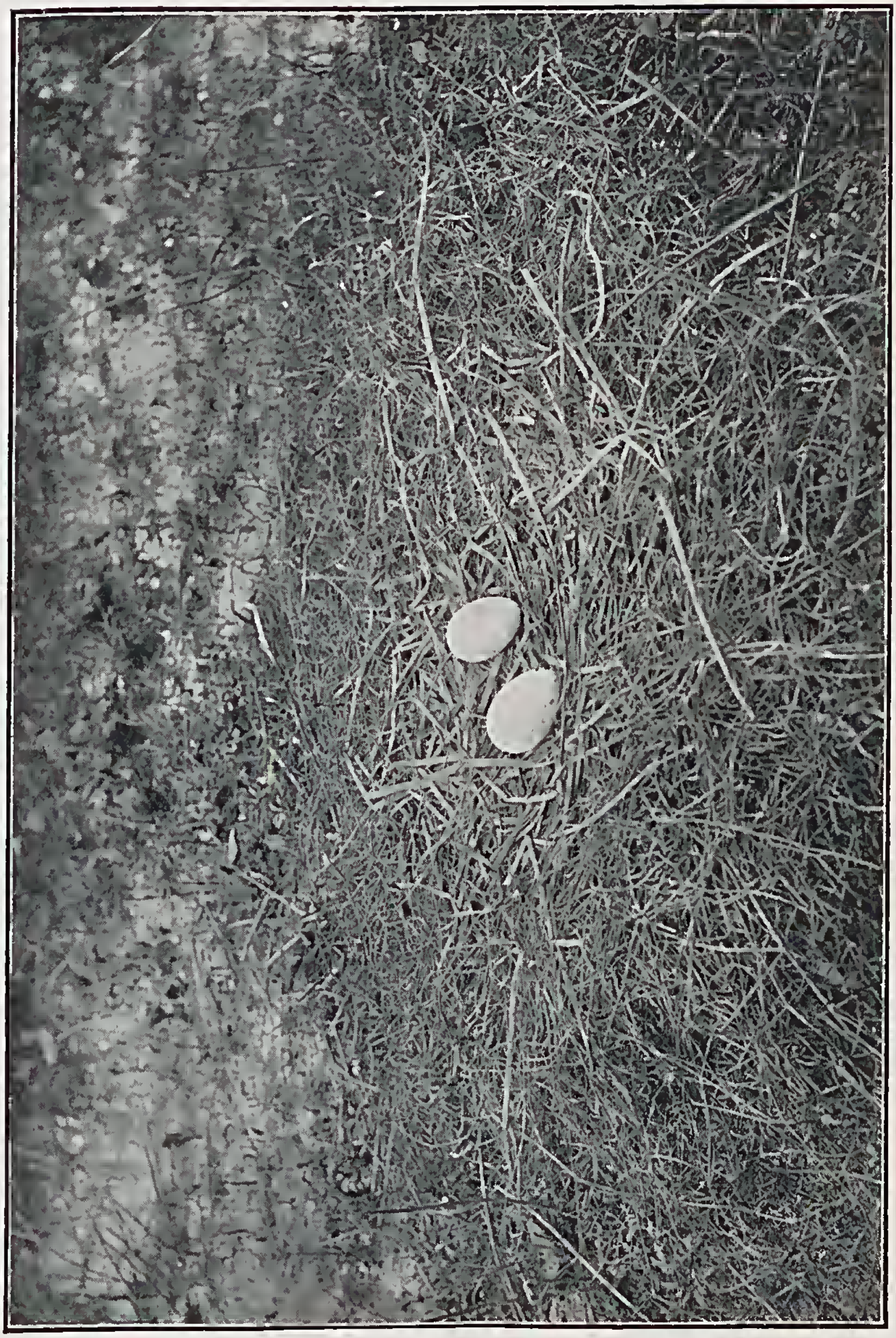
Egretta alba. White Egret.

These three species were seen in various places. Many of the swamps had some of these white birds on them, and a number were seen along the banks of the Fitzroy River. The fine large E. alba was easily recognised. The two smaller species, being much the same size, were not readily distinguished, unless the colouring of the bill could be seen plainly. Both were identified at Gracemere.

Notophoyx novæ-hollandiæ. White-faced Heron.—These were seen about several of the swamps near Rockhampton. There were also a number on North Keppel Island, some on the creek, and others wading on the mud flats.

Notophoyx pacifica. White-necked Heron. — A number of these birds were seen about the swamps near Rockhampton.

Demigretta sacra. Reef Heron.—One white bird and several with slaty-blue plumage were seen on the rocks and mud-flats at North Keppel Island. One or two blue specimens were also seen on the rocks at Yeppoon.



Nest of Brolga (*Megalornis rubicunda*) in McLaughlin's Swamp, Rockhampton—a bird sanctuary.

Photo by C. Barrett, R.A.O.U.

Nycticorax caledonicus. Nankeen Night-heron.—This bird was seen at Gracemere and at the Botanic Gardens, Rockhampton. At the latter place a bird was worried by a pair of Blue-faced Honeyeaters until it took refuge in the top of a big leafy tree.

Butorides striata. Mangrove Bittern.—Observed among the mangroves on the creek close to Yeppoon and on the mud-flat on North Keppel Island.

Anseranas semipalmata. Pied Goose.—At the Goose Swamp, Fitzroy Vale, about 12 miles from Rockhampton, so called because geese are nearly always present on it, there was a flock of perhaps a thousand of these birds and many other waterfowl. This great flock of black-and-white geese would rise gradually from the green swamp with increasing whirring and cackling until all were in the air—only to settle down gently to quietness again not far from the spot from which they rose. This occurred two or three times—a memorable sight.

Chenopis atrata. Black Swan.—A few Swans were observed on Gracemere and the Goose Swamp.

Dendrocygna javanica. Whistling Duck.

Dendrocygna eytoni. Plumed Whistling Duck.

Both species were seen on the lagoon at the Botanic Gardens. A flock of perhaps 100 birds rose and flew off to another part of the lagoon with much whistling. A number of Whistling Ducks were also seen on the Goose Swamp.

Tadorna radjah. White-headed Shelduck (Burdekin Duck).—Messrs. Alexander and Mackenzie observed a pair of Burdekin Ducks among the mangroves near the mouth of a creek at Yeppoon. They were standing on the bank in the shade and a good view was obtained.

Anas superciliosa. Grey (Black) Duck.

Virago gibberifrons. Grey Teal.

These two common ducks were seen on the lagoon at the Botanic Gardens and on The Goose Swamp.

Nyroca australis. Australian White-eyed Duck.—This species was seen on the lagoons at the Botanic Gardens, Gracemere, and Fitzroy Vale.

Biziura lobata. Musk Duck.—A few birds were seen swimming on the lagoons at the Botanic Gardens and Gracemere. This appears to be the most northerly locality at which the Musk Duck has been recorded.

Circus approximans. Swamp Harrier.—One of these birds was seen flying over The Goose Swamp at Fitzroy Vale by several members of the party.

Astur novæ-hollandiæ. Grey Goshawk.—This Hawk was fairly numerous in the scrubs at Byfield, and one was seen near a nest in a Eucalyptus tree not far from the camp, behaving as if the nest belonged to it. No examples of the white form were observed.

Astur fasciatus. Australian Goshawk.—Mr. H. G. Barnard identified a hawk seen on North Keppel Island as this species.

Accipiter cirrhocephalus. Collared Sparrowhawk.—Near Water Park Creek, Byfield, Messrs. Chenery, Alexander and H. G. Barnard saw a small hawk which the latter identified as a Sparrowhawk.

Uroaëtus audax. Wedge-tailed Eagle.—Single examples of this species were seen at Olsen's Caves and at Byfield.

Haliaetus leucogaster. White-breasted Sea Eagle.—This Eagle was seen more often than the preceding species. At Rockhampton it is sometimes called the "Silver King," but more usually is known as the "Fish Hawk." Several were noted during the trip on the Fitzroy River. At Gracemere a pair had a nest in a tall tree rising above the scrub. One of the eaglets had fallen out of the nest and was dead on the ground at the foot of the tree. Beneath the tree were also found the skeletons of several Water Tortoises (*Chelodina longicollis*) and the wing of a Coot (*Fulica atra*) and at a little distance the skeleton of a large Eel-pike (*Muraenesox*) was picked up. All these had doubtless been obtained by the birds from the adjacent lake, but whether they were killed by the birds or picked up dead there was nothing to show. Several of these Eagles were seen at Yeppoon and Messrs. Alexander and Chisholm saw a bird in immature plumage pick up a sea-snake from the beach and fly away with it. The tail of the snake was held in the talons of the Eagle, and though the snake endeavoured to lift its head to attack the bird, it seemed quite unable to raise it high enough. [In the *Emu*, Vol. VII., p. 172, Mr. E. M. Cornwall recorded that these Eagles live largely on sea-snakes on the islands off Mackay.]

Haliastur sphenurus. Whistling Eagle.—Many were seen in various places, especially on the launch trip on the Fitzroy River, when a few nests were seen in the high trees on the banks and birds going to them. Several nests were also seen about Gracemere. On the lagoon at the Botanic Gardens Mr. Alexander saw one swoop down into the reeds and reappear with a dark object in its talons. With this it settled on a post and proceeded to enjoy a meal. Through field-glasses Messrs. Alexander and Gaukrodger watched it tearing off feathers which appeared to be black, so the bird was probably a Coot, of which there were great numbers on the lagoon. About Rockhampton this bird is generally called the "Kite-Hawk."

Haliastur indus. White-headed Sea-eagle.—Numerous about Yeppoon, where they frequented especially the mangroves at the mouths of the creeks. A new nest without eggs was found on North Keppel Island in a Eucalyptus tree. This eagle is smaller than the White-breasted Sea-eagle, but a more showy bird, and with the sun in a favourable position its white head, neck and chest and the bright rufous colour of the body give it a very handsome appearance.

(To be Concluded.)

Visit to Coomooboolaroo

By W. B. ALEXANDER, M.A., C.F.A.O.U., Sherwood, near Brisbane.

Only two members, Mr. W. B. Barnard and the writer, were able to accept the invitation, given by Mr. C. A. Barnard to all those present at Rockhampton to visit him at Coomooboolaroo, after the conclusion of the conference. The beautiful old homestead standing on the bank of the long double lagoon is familiar to many members of the R.A.O.U., and, even in a district where the inhabitants are almost all hospitable, the hospitality of Mr. and Mrs. Barnard is famous. Under these circumstances it is

Forest country, Byfield, showing portion of camp and nesting trees of Frogmouths, Blue-faced Honey-eaters and Forest Kingfishers.

Photo by A. H. Chisholm, R.A.O.U.

NATIONAL MUSE [illegible] [illegible]ENE

unnecessary to add that the visitors greatly enjoyed their brief visit.

The country was in a dry condition, and bird-life was, in consequence, not very plentiful. Amongst the blue lilies on the lagoon there was a brood of young Wood Ducks (*Chenonetta jubata*) with their parents, and a brood of young Black Ducks (*Anas superciliosa*) was seen on one of the dams.

In the large trees along the creek-bed various birds were nesting, including Grey-breasted Wood Swallows (*Artamus hypoleucus*), Whistling Eagles (*Haliastur sphenurus*), and Collared Sparrowhawks (*Accipiter cirrhocephalus*). The writer was fortunate enough to witness an incident in the domestic life of the latter birds. The female was sitting on the nest in the evening, only the tip of her tail visible from below, when the little male appeared with a mouse grasped in his left foot. He settled in a tree near the nest, and uttered a whistling call, whereupon the female left the nest and joined him. They sat side by side on a limb for a moment, then flew off together, and as they did so the female snatched the mouse from her mate. She flew back to the bough, holding it in her right foot, and proceeded to devour it.

Perhaps the rarest bird seen at Coomooboolaroo on this occasion was the Black-eared Cuckoo (*Mesocalius osculans*). An adult was seen in a clearing in the scrub, and later a young bird was seen being fed by a pair of Purple-backed Wrens (*Malurus assimilis*). I am informed that the Variegated Wren of this district which was described by Mr. H. L. White as *Malurus lamberti dawsonianus* is now regarded as a form of *M. assimilis*, though its describer stated it was just as distinct from *assimilis* as it was from *lamberti*, and geographical considerations would suggest the latter as its nearer ally. The form is figured in the *Emu*, Vol. XVI., p. 69. To return to the young Cuckoo which these Wrens were feeding, it may be mentioned that it uttered a low twittering note very much like that of its foster-parents.

At Tambourine Mountain

By A. H. CHISHOLM, C.F.A.O.U., Sydney.

Tambourine Mountain, a spur of the Macpherson Range, lying approximately thirty miles south-east of Brisbane, has long been a favourite of naturalists. In the old days the jungles there were very rich in a wide variety of wild life, and even now, when settlement has developed and is still developing, the old mount has much of charm to offer to students of all branches of natural history.

This was impressed upon those members of the R.A.O.U. who visited Tambourine on returning from Central Queensland. They comprised Messrs. Barrett, Chisholm, Gaukrodger, Brenan, Musgrave, Carter and Sloane. The extent of their visits was from a few hours to several days, and all were the guests of Mrs. Geissmann and Miss Hilda Geissmann at their hospitable home, "Capo di Monte." Weather conditions, on the whole, were rather unfavorable, rain following a heat wave, but both the ornithologists and entomologists of the party had a very interesting time. Some attention was given also to flora, notably a fine old Cycad (*Macrozamia*) and a glorious lot of ravine orchids (*Sarcochilus fitzgeraldi*) that bedecked mossy rocks in a deep gorge.

Birds were plentiful. It was a delight to hear and see again those jungle-lovers that were missing from Byfield—among them Rifle-Birds, Regent and Satin Bower-Birds, Cat-Birds, Yellow-throated Scrub-Wrens, and Brown Warblers. The last-named bird (*Gerygone fusca*) made the fourth species of its genus we had seen in Queensland. Nest, adults and young were photographed.

Tambourine Mountain has to its credit nearly 200 species of birds. The only South Queensland jungle bird absent is *Atrichornis rufescens*, the Eastern Scrub-Bird, which is found in Queensland only on the main Macpherson Range.

Notes and Comments

The current number is devoted almost exclusively to the Annual Meeting of the Union, and the various excursions organised in connection therewith.

The 1924 Congress was unique in several features, and it is hoped that members who were unable to be present will appreciate a fuller account of it than has been published of most previous congresses of the Union.

In the first place, the 23rd Congress was honoured by the presence at most of its sessions of His Majesty's representative in the State where it was held. His Excellency Sir Mathew Nathan, G.C.M.G., Governor of Queensland, specially journeyed from Brisbane to Rockhampton to take part in the conference. His presence was inspiriting to the members as a proof that their labours on behalf of bird study and protection are appreciated by one whose high position makes his opinion of great value. The presence of the Governor also tended to increase the interest of the people of Queensland in the work of the R.A.O.U., and to prevent the inhabitants of the Rockhampton district from regarding the visiting ornithologists as mere cranks.

In the second place, the Congress was the first to be held at a city which is not one of the State capitals. Rockhampton is the principal city of the central division of Queensland, which has an area larger than some of the existing States of the Commonwealth, and its inhabitants undoubtedly appreciated the recognition shown by the Union of the importance of their city: A civic reception was accorded to members on their arrival, and subsequently they were entertained by the Mayor in the city's botanic gardens.

The fact that the city was smaller than those in which previous meetings have been held made it possible to arrange numerous short excursions to localities in the neighbourhood where plenty of birds were to be seen. Most of the localities thus visited during the Congress were bird sanctuaries, many of which owe their existence to the very active Central Queensland Native Birds Protection Association, an admirable Rockhampton organisation which might well serve as a pattern to bird-lovers and sportsmen in other centres.

In the third place, the camp at Byfield was in a locality which had never previously been visited by ornithologists. Those who took part had no idea what birds they would find there, and the exploration of the scrubs of the Byfield district, as well as the visit to North Keppel Island, broke entirely new ground and added considerably to our knowledge of the distribution of Australian birds.

The Congress was noteworthy also in that it marked the retirement from the presidency and from the editorship of *The Emu* of Dr. J. A. Leach, who as vice-president and later as president has been chairman of most of the Union's meetings for many years past, and whose editorial connection with this journal has lasted for over ten years. Members accorded him the highest honour in their power by unanimously electing him an Honorary Member of the Union.

It was singularly unfortunate that the editor and the assistant editor of *The Emu* found it necessary at the same time to resign on account of the pressure of other duties. The new editors, who have taken over the work at short notice and without previous experience, trust that members of the Union will treat any faults they may discover with the indulgence usually granted to beginners. Criticism or comments will be welcomed, and it is hoped that with the aid of the printing committee and advice from members generally, the magazine may continue to retain its high standard, and that members of the R.A.O.U. will still be able to take a pride in their journal.

In view of the discussion on the International Museum of Comparative Oology which took place at the recent Congress, and the resolution as to that organisation which was carried (*ante* p. 196), members will read with interest the following paragraph which appeared in *Nature*, the leading English scientific journal, on September 13th, 1924:—

"Ornithologists have recently been hearing a good deal of the International Museum of Comparative Ooology at Santa Barbara, California. We have now before us the first number of the Journal of this Museum, edited by the director, W. L. Dawson, and entitled *The Comparative Oologist.* Throughout, the claim is made that oology is an independent science of considerable importance—once indeed we are told that 'Oology is the science of one half of the biologic process'; but the Journal itself enables us to see how much weight is to be attached to these claims. We will content ourselves with one passage, in which the editor informs us that the shell of a bird's egg has been formed in the ovary, 'that innermost sanctuary of life!' and therefore enables us (how is not stated) to penetrate into the mysteries of the 'reproductive stream itself.' Numerous other quotations could be made to show that Mr. Dawson, while admirably qualified to write of generalities in a high-faluting style, appears to be unfamiliar with elementary facts concerning his special subject-matter. We wonder what men like Dr. R. Ridgway, Dr. Shufeldt, Mr. Oberholser, or the Rev. F. Jourdain will feel when they see themselves associated with the highly original avian anatomy and physiology of the sort we have quoted. We may also quote from the rules: 'Any person of scientific integrity, having attained the age of 18, who is interested in the pursuit of oology as a science *or in the collecting of bird's eggs* (italics ours) may become a 'Scientific Member' of the Museum.' That is what many had supposed: now we know it. But the Museum cannot have it both ways. It can be a centre for egg-collectors, patrons of what is an amusing and interesting sport if not carried (as unfortunately sometimes happens) to the pitch of mania. Or it can be an institution for the scientific study of egg-shells, from which we may doubtless expect some, though not very much or very valuable, new knowledge. But it must not think that it can use science as a cloak for mere collecting; and that is precisely what, with its present rules and organisation, it appears to be trying to do."

Mr. N. W. Cayley, R.A.O.U., the well-known Australian bird artist, informs us that he will be pleased to paint pictures, free of cost, for reproduction in *The Emu,* to illustrate papers contributed by members of the Union. The beautiful coloured plate in the present number is from a painting which Mr. Cayley made by request, and is the best possible evidence of the value of his generous offer.

All communications in connection with *The Emu,* and articles or photos for publication should in future be addressed to the Editor at Sherwood, near Brisbane, not to the official address of the Union.

The date of publication was 20th February, 1925.

The Emu

Official Organ of the Royal Australasian Ornithologists' Union

"Birds of a Feather."

Vol. XXIV.] 1st APRIL, 1925. [Part 4

Notes on the Rusty Field-Wren

(*Calamanthus isabellinus*)

By EDWIN ASHBY, C.F.A.O.U., M.B.O.U., Blackwood, S.A.

The Rusty Field-Wren was described by North in 1896 from skins collected by Keartland at Missionary Plains, Central Australia, in 1894, the description being published in the *Report of the Horn Expedition*, Vol. II., Zoology, page 85, 1896.

In the type form the striations on the crown were absent or semi-obsolete. A bird similar in coloration but with well-marked striations on the crown and back was described by Campbell from a skin collected by Carter at Point Cloates, in the north-west of Western Australia, under the name *Calamanthus rubiginosus*, the description being published in *The Victorian Naturalist*, Vol. XVI., page 3, May, 1899.

The Rusty Field-Wren is essentially a bird of the dry interior, or, as we so often term it, a desert bird. Keartland, in his original field-notes, says that it frequents the desolate gibber plains, "far away from scrub or shelter of any kind, two of these little birds were seen running over the stones or gibbers, as actively and quickly as a Dotterel on the sea beach."

A specimen in my own collection, taken at Leigh's Creek in South Australia, Dec. 12, 1910, is identical with another collected at Day Dawn, in Western Australia, May 13, 1903, both being without striations on the crown and faintly striated only on the back. On the other hand, in the same collection, is a male, also taken at Day Dawn, in June of the same year, in which the crown is as strongly striated as in Campbell's *C. rubiginosus* and the striations on the neck and breast are darker and double the width of those on the specimens referred to above.

While in most of the skins from Leigh's Creek there is little or no striation on the crown, a few from this locality are well striated. McGilp reported that in the Lake Frome district both these forms were living together and inter-breeding. On June 8, 1919, he took the eggs and made skins of a nesting pair, in which the striations were absent in one sex and present in the other. These skins are now in the South Australian Museum.

It is fairly evident that these variations are not seasonal, though they are probably in some measure affected by both sex and age. More material from these very widely separated localities is needed to enable one to assess fully the value of these factors.

DESCRIPTION.

Calamanthus isabellinus, North, = *C. rubiginosus*, Campbell, Rusty Field-Wren.

Forehead, crown and nape rufous, varying from streaks absent or sub-obsolete to having brown streaks, narrow but well-defined; upper surface sandy rufous, broadly and faintly streaked with brown; throat, neck and breast white to buff, streaks dark brown, well-defined but usually narrow; abdomen unstreaked.

A Wonderful Cockatoo.—A tennis match was played at Belltrees to-day, and a number of players came from Stewart's Brook, some 14 miles distant. Among them was Miss Dulcie Towns, who owns a pet White Cockatoo (*Kakatoë galerita*), which is about ten years old, very tame, and was secured from a nest in the district. This fine bird followed Miss Towns during her 14 miles drive to Belltrees, frequently flying well ahead, settling in a tree, and waiting until Miss Towns drove near; then the bird flew on again. This was kept up until Belltrees was reached. On arriving at the boarding-house, the bird followed Miss Towns through the front door, and alighted on the dining table. On the way down from Stewart's Brook a flock of White Cockatoos was passed in the forest, but the pet bird flew on, and took no notice of them. At Belltrees to-day this Cockatoo flew after Miss Towns to the tennis court (about a quarter of a mile from the boarding-house), and there sat in a tree watching the game. When afternoon tea was served it came down out of the tree, had something to eat, returned to the tree, and sat there until the game was finished. Later, Miss Towns started back to Stewart's Brook, the bird following her, frequently flying high overhead, but keeping well in front most of the time. It was dusk when they arrived home. The Cockatoo made a flight to-day of 28 miles when following Miss Towns—a wonderful performance.

At her home Miss Towns generally keeps the Cockatoo chained up, and states that sometimes he bites the chain through, or smashes it with his powerful bill. The bird is a good talker, and mimics well.—SID WM. JACKSON, R.A.O.U., Belltrees, Scone, New South Wales, 26th July, 1924.

Notes on the Birds observed during the Queensland Congress and Camp-out, 1924

By H. WOLSTENHOLME, R.A.O.U., Wahroonga, Sydney.

Part II.—Continued

Baza subcristata. Crested Hawk.—Some of these birds were seen about Byfield; at Water Park Creek Mr. Sharland discovered a nest on which a bird was sitting. Nearer the camp at the mouth of Byfield Creek a tree was pointed out which contained four old nests of this hawk.

Falco subniger. Black Falcon.—One of these falcons was seen by Mr. Alexander at Fitzroy Vale.

Ieracidea berigora. Brown Hawk.—Seen a few times.—At Fitzroy Vale a pair had a nest in a tree on a small hill by The Goose Lagoon.

Cerchneis cenchroides. Nankeen Kestrel.—Seen very occasionally.

Pandion haliaëtus. Osprey.—Several of these handsome birds were seen on North Keppel Island, where there was an old nest on an outlying rock which was known as "Eagle Rock." One or two were seen flying over the beach at Yeppoon.

Ninox boobook. Boobook Owl.—Heard at night in camp. On North Keppel Island a bird was seen, and its nest discovered in a deep hole in a tree.

Ninox rufa. Rufous Owl.—Messrs. Chenery, H. G. Barnard and Alexander flushed a large owl from a thick scrub tree on the bank of Water Park Creek. It settled for a moment or two in full view on the limb of another tree, and Mr. Alexander had a view of it through his field-glasses which left little doubt that it was of this species. It flew off into the thick scrub pursued by a Grey Goshawk and was not seen again. A few days later Mr. Sharland saw a bird which he identified as of this species.

Trichoglossus moluccanus. Rainbow Lorikeet.—Small flocks were seen flying over on several occasions.

Trichoglossus chlorolepidotus. Scaly-breasted Lorikeet.—Observed in the trees about Rockhampton or their screeching heard as they flew over.

Calyptorhynchus lathami. Glossy Black Cockatoo.—Messrs. Chisholm and Alexander were in the forest country on the hills behind Yeppoon, when they heard loud notes quite unfamiliar to either of them. Shortly afterwards a flock of Black Cockatoos appeared and flew close overhead, uttering the strange notes as they flew. They might be described as prolonged squeaky caws, and were quite distinct from the well-known flight-calls of the Banksian and Funereal Cockatoos. Mr. H. G. Barnard was subsequently asked to imitate the call of the Glossy Cockatoo, and at once made sounds unmistakably similar to those uttered by the birds seen earlier, thus placing the identity of the species beyond doubt.

Cacatua galerita. White Cockatoo.—A few were seen and heard near the camp. Byfield residents stated that at times they were there in great numbers.

Aprosmictus erythropterus. Redwing Parrot.—Mr. H. G. Barnard observed this bird between Yeppoon and Byfield.

Aprosmictus scapularis. King Parrot.—A pair were nesting about a mile from the camp at the point where the road crossed Stony Creek. They were seen several times in this locality.

Platycercus adscitus. Pale-headed Rosella.—Seen on several occasions about Rockhampton, Yeppoon and Byfield.

Podargus strigoides. Tawny Frogmouth.—Three of these birds were seen on nests. The first was in a large ornamental tree overhanging the road growing in a private garden on the range at Rockhampton, another was above our lunching place at Olsen's Caves, and the third was right over the camp at Byfield. The latter was naturally under constant observation. It contained two young birds, and one parent sat in the nest with them all day long apparently paying no attention to the bustle beneath. Just at dusk each evening the parent slid silently from the nest and flew off among the trees, soon to reappear with some dainty for the nestlings. Only one parent was seen at the nest, and much of the food seemed to be obtained from the ground. On the last evening we were in camp, as soon as the parent left, one of the young birds climbed out of the nest on to the adjacent branch, where it stood up and flapped its wings a number of times. The second youngster climbed on to the edge of the nest and also did some flapping exercise. It would have been interesting to know how many more days elapsed before the first flight was undertaken.

When walking along the bank of Polka Creek, Mr. Alexander flushed a bird from the ground, where it was resting in a little clear space just such as would have suited a Nightjar. The bird only flew a short distance and alighted in a tree, where the fact that it was a rufous-coloured Frogmouth was speedily apparent. It is certainly very unusual to find these birds on the ground in the day-time.

Aegotheles cristata. Owlet Nightjar.—This bird's calls were frequently heard at night close to the camp, being identified by Mr. H. G. Barnard.

Eurystomus orientalis. Dollar-bird.—Seen or heard in many places. Near Water Park Creek at Byfield they were nesting. Here they were seen dipping into the surface of the creek—a large sheet of water.

Alcyone azurea. Azure Kingfisher.—Seen by the creeks at Yeppoon and on Polka Creek, Byfield.

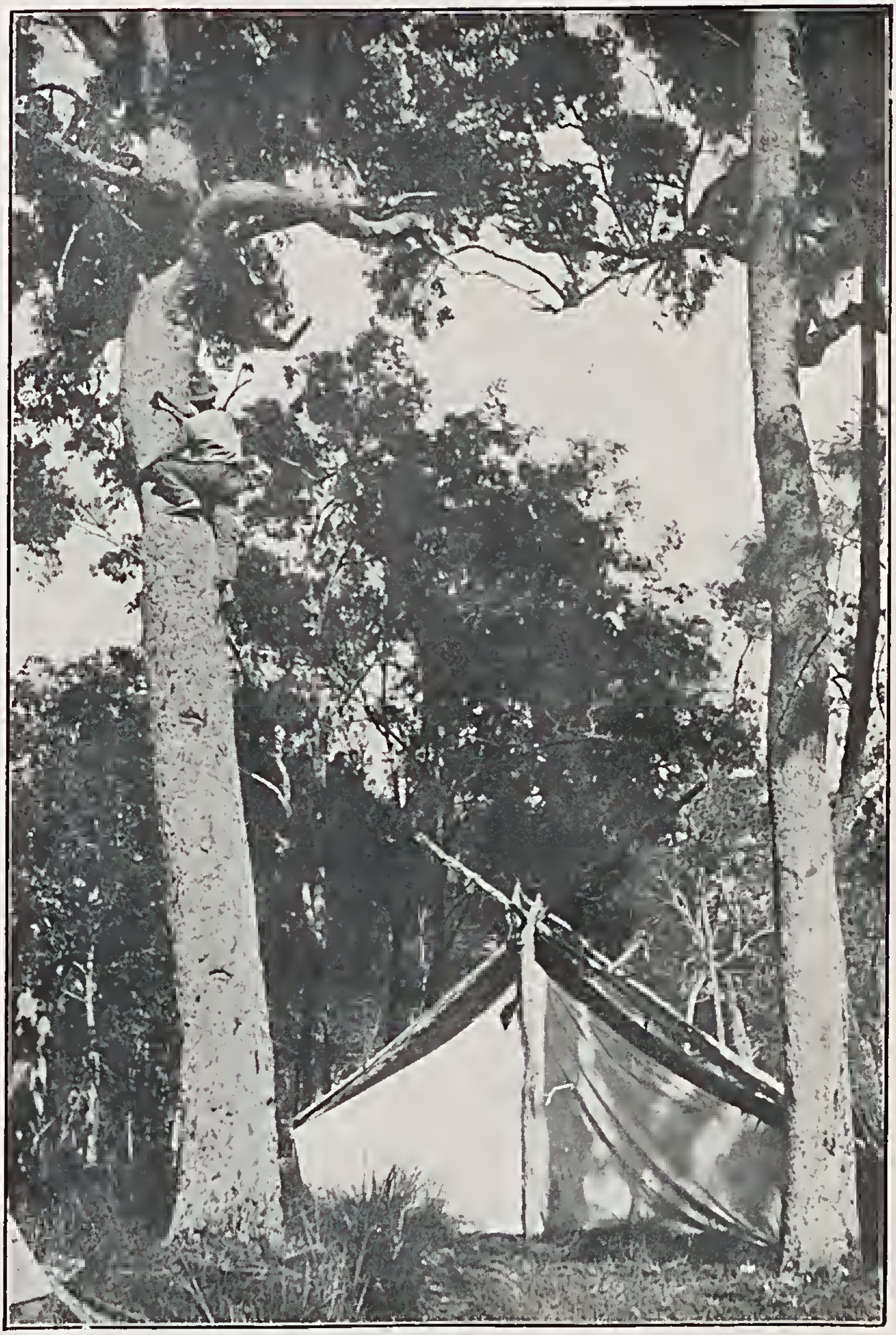
Dacelo gigas. Laughing Kookaburra.—Seen and heard almost everywhere.

Dacelo leachi. Bluewing Kookaburra.—This bird was often seen about Rockhampton and Yeppoon. Its size is almost that of Dacelo gigas, its plumage much brighter—the head nearly white with faint streaks of brown, the wing (mostly) and the base of the tail bright blue and very noticeable when the bird is seen in flight from behind. The male has also a dark blue tail. To Southerners familiar only with a Kookaburra with a hearty laugh this bird's note was disappointing, and a poor attempt—if a laugh was expected. It was more like a bark or a cough, but nevertheless interesting.

Halcyon macleayi. Forest Kingfisher.—These white-breasted Kingfishers with their bright greeny-blue backs were plentiful wherever we went and were breeding. A pair had a burrow in a termite nest in a bloodwood tree overhanging the camp. Another nest was at Yeppoon, and another in a white-ant's nest in a small tree on North Keppel Island contained two eggs.

Halcyon sanctus. Sacred Kingfisher.—Seen in many places, but less frequently than the Macleay Kingfisher.

Merops ornatus. Rainbow-bird (Bee-eater). — One of the birds most frequently seen. About Rockhampton they were very plentiful, particularly near the Botanic Gardens, where nesting burrows were observed in a sandy patch of ground—some of the burrows being made into a quite flat surface. At Yeppoon birds were constantly seen and heard in the trees by the road along the shore and burrows were here made into sandbanks almost reached by high tides. One burrow into which a bird had flown was found to be well over 3 feet in length. It is said that a little grass is sometimes placed at the end of the burrow for the eggs to rest on, and sometimes the eggs are placed on the bare



Mr. H. G. Barnard climbing to nest of Forest Kingfisher (*Halcyon macleayi*) at R.A.O.U. camp, Byfield.

Photo by D. S. A. Drain, R.A.O.U

NATIONAL MUSEUM MELBOURNE

sand. Schoolboys at Yeppoon called the birds "Needle-beaks." At Byfield the birds were to be seen where the land had been cleared.

Eurostopodus mystacalis. White-throated Nightjar.—Mr. H. G. Barnard recognised this bird's call the first night in camp at Byfield.

Cuculus pallidus. Pallid Cuckoo.—Seen and heard at many places.

Cacomantis pyrrhophanus. Square-tailed Cuckoo.—This bird's call was heard about the Fitzroy River during the river trip, on the run between Yeppoon and Byfield, and at the head of Polka Creek while all the Pigeons were cooing. The bird itself was hardly ever seen. No Fantail Cuckoo was seen or heard at all.

Chalcites basalis. Narrow-billed Bronze Cuckoo.—The Bronze Cuckoo note, "See-e-ee you," attributed to this species in Sydney, was heard at Rockhampton and Yeppoon.

Lamprococcyx russatus. Rufus-breasted Bronze Cuckoo. —The notes of this bird, which were familiar to Mr. Alexander, were recognised in many places, and it appeared to be the common Bronze Cuckoo of the district. Its most distinctive and characteristic call is a trill of silvery, grasshopper-like notes repeated many times in rapid succession. Indeed Mr. Chisholm maintained that the notes were made by an insect until he was convinced by the sight of the cuckoo actually uttering them. There is little doubt that the Bronze Cuckoo's egg found in the nest of the Fairy Warbler at Water Park Creek was of this species, as was most probably the young Bronze Cuckoo which Mr. Chisholm saw being fed by a pair of Fairy Warblers at Yeppoon.

Eudynamis orientalis. Koel.—These birds were plentiful. The strange "Cooee" call was one of the earliest bird-calls heard at Rockhampton, Yeppoon and Byfield. Throughout the daytime the "Woo-woo-woo-woo-woo" call was often heard, the "cooees" being more used at evening and early morning and sometimes during the night.

Scythrops novæhollandiæ. Channelbill Cuckoo.—This bird flew over us, giving its rasping scream on our first outing at Fairy Bower, Rockhampton, where a number were feeding in the large fig trees. Not many others were seen. It is commonly known in the district as the "Storm-bird."

Centropus phasianinus. Pheasant Coucal.—Very plentiful, especially at Yeppoon. The loud "Coop . . . coop-coop-coop-coop" calls, with emphasis and pause on the first "coop," were very frequently heard. The birds were often observed at close quarters—perhaps on the low branch of a tree to which they had been flushed, sometimes running along the ground. Pairs were seen, and they were perhaps breeding in the long grasses about the low land. They are known in the district as Swamp Pheasants.

Pitta versicolor. Noisy Pitta (Dragoon-bird).—These birds were in the thick scrub at Byfield, and it was disappointing that they were hardly ever seen. Messrs. H. G. Barnard and Chisholm saw a bird and a few other members heard the call, which sounds like "want a whip, want a whip."

Hirundo neoxena. Welcome Swallow.—Seen in most places, even on North Keppel Island, where they were apparently nesting on the cliffs.

Hylochelidon nigricans. Tree Martin.—These were met with in many places. A number of birds were nesting in the hollows of big trees at Fitzroy Vale, near the Goose Swamp.

Hylochelidon ariel. Fairy Martin.—Numerous at Rockhampton, where many nests were being used on the front of the Bank of New South Wales in Quay-street, facing the Fitzroy River. The characteristic nests were seen on other buildings.

Rhipidura rufifrons. Rufous Fantail.—Only one bird was seen in the scrub near Olsen's Caves. The Grey Fantail (*R. flabelliformis*) was not seen at all. It is only a winter visitor to the district.

Rhipidura leucophrys. Black and White Fantail (Willie Wagtail). —Seen almost everywhere, and nests frequently noticed.

Seisura inquieta. Restless Flycatcher.—One pair noted in the grounds at Gracemere.

Myiagra rubecula. Leaden Flycatcher.—Pairs were observed in many places.

Monarcha trivirgata. Spectacled Flycatcher. — This prettily-coloured flycatcher was first seen near Olsen's Caves and was often seen in the scrubs at Byfield, where it was quite the most plentiful bird of the genus. Some of their prettily decorated mossy nests were found, situated low in the fork of the upright stem of a small bush or tree. (For photograph of a nest see *Emu* XVII., plate 6.) A nest found by Mr. Chisholm contained young birds; another nearly completed nest was seen with the bird at work on it.

Monarcha leucotis. White-eared Flycatcher.—This rather rare bird was seen a few times. Messrs. Alexander, Chenery and H. G. Barnard saw several in the scrub near Olsen's Caves, and Mr. Chisholm saw a parent bird feeding young at Byfield.

Monarcha melanopsis. Black-faced Flycatcher.—Not often seen. Mr. Jerrard reported seeing one at Rockhampton. Its unmistakable "Why you witchoo" calls were heard in the scrub at Olsen's Caves and Byfield, and at least one was seen in the scrub near the beach at Yeppoon.

Microeca fascinans. Jacky Winter (Brown Flycatcher).—A few pairs only were seen—here and there—where there was timber and open country.

Eopsaltria australis. Yellow Robin.—These birds were seen in various localities, and nests found. Near the camp and creek at Byfield there was a family of young birds lately out of the nest. In habits and notes the birds seemed absolutely the same as the typical form found near Sydney, nor could any of the members see any difference in coloration. No doubt the birds in this district belong to the race named E. coomoohoolaroo, the type locality of which is the station of that name on the Dawson River. The resemblance to the typical form is remarkable considering that both further north and further south the birds have much brighter yellow colouring on the rump and have been named E. chrysorrhous and E. magnirostris respectively.

Pachycephala rufiventris. Rufous Whistler.—This fine songster was very often heard (less often seen) in most of the places visited. No Golden Whistler (*P. pectoralis*) was reported at all, though we were frequently in places of the kind where the bird would almost certainly be found in Southern Queensland or New South Wales.

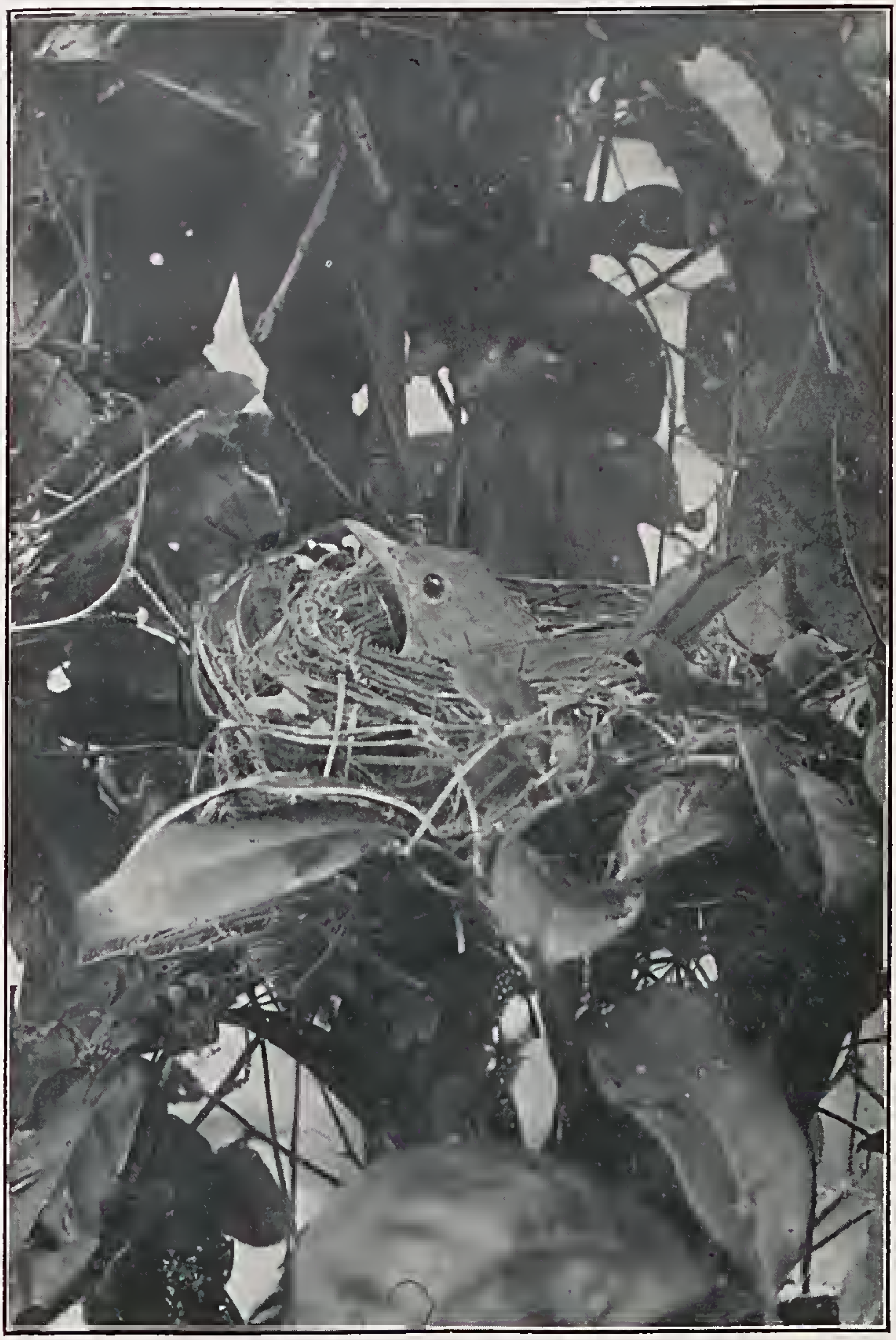
Colluricincla harmonica. Grey Shrike-thrush.—We saw a few of these birds in the more open bush, not in the scrub.

Colluricincla megarhyncha. Rufous Shrike-thrush.—This smaller thrush was the thrush of the dense scrubs, being very plentiful at Yeppoon, where in the scrub belt bordered by the road and the mangrove swamps their sweet and clear "Wot wot" notes were continually heard. They were also seen in the scrubs at Fairy Bower, Olsen's Caves and Byfield. At Yeppoon two nests were found low in lanky thin bushes. The nest is smaller than that of the Grey Thrush, and being placed in a position that gives little or no support to its sides, it has to be made more compact than that of the larger bird. Each nest contained three eggs, marked like the Grey Thrush's eggs, but smaller.

Grallina cyanoleuca. Magpie-Lark.—Seen nearly everywhere, and nesting. In this district it is universally called "Peewee" or "Peewit."

Falcunculus frontatus. Eastern Shrike-tit.—Only one bird was met with. It was heard by Mr. Chisholm and then seen as we returned from Polka Creek.

Graucalus novæ-hollandiæ. Black-faced Cuckoo-shrike.—Plentiful. There was a nest near the camp at Byfield Creek.



Rufous Shrike-Thrush (*Colluricincla megarhyncha*) on nest at Yeppoon.

Photo by N. Chaffer, R.A.O.U.

Graucalus robustus. Little Cuckoo-shrike.—A small company was seen close to camp, and their queer note, in part resembling a fizz, was heard.

Graucalus lineatus. Barred Cuckoo-shrike.—A little flock was in the big trees above the scrub at Olsen's Caves and the fine barring of the whole under-plumage well seen. Later some of the party climbed the limestone hill and saw the birds again at close range, being level with the tree-tops. The pale yellow eye gives them a curious expression when seen at close quarters.

Edolïsoma tenuirostris. Great Caterpillar-eater.—The prolonged one-note call of this bird was often heard from the forest trees at Byfield. It was also heard from the trees near the Fitzroy River. The bird was not often seen—one had to follow up the call.

Lalage tricolor. White-shouldered Caterpillar-eater.—Very rarely seen and only in open country. A pair of birds had a nest near the Botanic Gardens at Rockhampton. It appears that when these birds reach the more northerly parts of Queensland for the winter season the male bird's plumage is changed for the dull brown of the female. He regains the black and white colour just before returning south in the spring.

Lalage leucomela. Varied Caterpillar-eater.—This species differs from the preceding in being a scrub bird. It was in all the scrubs we visited, most plentiful at Yeppoon. Here a nest in a low position, containing one egg, was found by Mr. W. B. Barnard, but not in time to be photographed before we left. The nests of both species are about the same size, but the egg of the scrub bird is considerably the larger and only one is laid.

[For pictures of nests and eggs of these birds see *Emu* XIX., p. 72.]

Sphecotheres vieilloti. Green Figbird.—This bird was very often seen. It is one of the familiar birds of the coastal district of Queensland, plentiful in the bush and not minding the precincts of dwellings. At Rockhampton they were numerous in the trees of a street by the river, where two birds were seen at a nest—a flimsy structure in a small fork of a fig-tree. The male bird is yellowish-green, breast yellow, head dark grey with a conspicuous bright red patch about the eye. The female is brown and resembles the Olive-backed Oriole (*Oriolus sagittatus*) in its under marking. It has not the red facial mark of the male bird. One bird was seen with female plumage and the red round the eye, apparently an immature male bird. The chief calls heard were monotonous chirping that might have come from domestic chickens.

Pomatostomus temporalis. Grey-crowned Babbler.—A few birds and one nest were seen near Rockhampton.

Oreocincla lunulata. Ground-Thrush.—One bird only seen by Mr. Chaffer in company with a Byfield resident, who said the bird was rare in those parts. It is apparently confined to the scrub-covered ranges.

Gerygone olivacea. White-throated Warbler.—This pretty little singer was observed only here and there and nowhere seemed to be as plentiful as in South Queensland or New South Wales. Its song also did not seem to be so loud or sustained as it is in more southern parts. A nearly completed nest was seen in a fruit tree at Lloyd's farm, near the Brolga swamp, at Rockhampton. The birds came quite fearlessly to add material whilst members of the party stood a few feet away.

Gerygone cantator. Mangrove Warbler.—This species, too, has a very pleasing song, but not the stream or cascade of melody of G. olivacea. It is brownish grey in colour and likes the mangroves. It was observed among them about the mouths of the creeks both north and south of Yeppoon. [See A. H. Chisholm's article on these two Gerygones in *Emu* XVII., p. 150.] The Mangrove Warbler has not previously been recorded north of Gympie, but Messrs. Chisholm and

Alexander, who were familiar with the bird in its type locality, Brisbane, were quite satisfied that the birds seen at Yeppoon were of this species. There seems every reason to suppose that the bird common in the mangroves about Mackay is identical, though Mr. Mathews has referred it to *G. cairnsensis* on one page ("Birds of Australia," VIII., p. 149) and to *G. mouki* on another page (ibid, p. 165).

Gerygone flavida. Fairy Warbler.—This northern species was observed in the scrub at Fairy Bower and Olsen's Caves, near Rockhampton, also at Yeppoon and Byfield. [See special article in this volume, ante p. 161.]

Acanthiza nana. Little Thornbill. — This bird was seen near Olsen's Caves, and seemed somewhat different from the form so plentiful about Sydney. No doubt it was the race named dawsoniana. [See *Emu* XVIII., page 122.]

Acanthiza pusilla. Brown Thornbill.—Seen at Byfield by Mr. Chisholm feeding what he took to be a young Square-tailed Cuckoo.

Geobasileus chrysorrhous. Yellowtail Thornbill.—Reported near Rockhampton by Messrs. Chaffer and Barker.

Sericornis frontalis. White-browed Scrub-wren.—Seen at Olsen's Caves and at Byfield. In the latter locality they were often heard in the undergrowth.

Sericornis magnirostris. Large-billed Scrub-wren.—Observed and heard in the scrub at Byfield. One nest was found.

Megalurus galactotes. Tawny Grass-bird.—Rather numerous in the long grass and small bushes clothing the hills on North Keppel Island. They hopped about in the bushes uttering a loud double chirping alarm note or flew from one bush to another just above the level of the grass. The head is orange brown with dark streaks, the upper parts rufous also with dark streaks and the tail very long, brown, with distinctly pointed feathers. The throat is whitish and the under parts grey. At times they rose a short distance into the air uttering a chirping grasshopper-like song.

Cisticola exilis. Fantail Warbler.—Some birds were seen in the long grass near the lagoon at the Rockhampton Botanic Gardens. At Yeppoon a single bird was singing well in a bush by the roadside during a shower of rain and allowed members of the party to approach very close before it took flight. Messrs. Chenery and H. G. Barnard saw many in the higher cleared land above the road.

Malurus melanocephalus. Orange-back Wren.—These little birds were plentiful in nearly all the places we visited, and were often seen from the train about the long grass or on railway fences. At Yeppoon in the bushes along the road by the shore they were particularly numerous; here a pair with a young family; there two males in brightest plumage chasing each other; in another place immature brown birds with orange backs quietly moving from bush to bush. Their warbling was similar to that of the Blue Wren (*M. cyaneus*) of New South Wales and Victoria, and it took members from the southern States a little while to get used to discovering that the warbling came not from a blue but from a black Wren, the black head and neck catching the eye more quickly than the orange back.

No other species of Malurus was seen.

Artamus leucorhynchus. White-breasted Wood-Swallow.—Numerous about Rockhampton. A parent bird was seen feeding young lately out of the nest in a palm growing in the grounds of a State School.

Artamus hypoleucus. Grey-breasted Wood-Swallow.—Several were seen on the road to Olsen's Caves.

Artamus minor. Little Wood-Swallow.—Seen occasionally at Rockhampton.

Psophodes olivaceus. Eastern Whipbird.—Heard in the Byfield scrubs, but rarely. Similar scrubs in New South Wales would contain a great many of these birds.

Neositta leucocephala. White-headed Tree-runner.—A small flock was seen in a large eucalypt near the camp at Byfield. The whole of the head and neck is white and the wing has a rufous band as in the Orange-winged Tree-runner (*N. chrysoptera*) of the south. The note was the same as that of the southern species.

Climacteris picumna. Brown Tree-creeper.—This bird was noted by Dr. Chenery in the timber on the bank of the Fitzroy River.

Climacteris leucophœa. White-throated Tree-creeper.—Fairly plentiful in the timber near the camp at Byfield.

Dicaeum hirundinaceum. Mistletoe-bird.—The shrill chirping of this little bird was heard at most of our stopping-places, but the bird was not often seen unless looked for. In a small tree by the Fitzroy River at Rockhampton, Miss Geissmann found a nest containing young birds.

Pardalotus ornatus. Red-tip Pardalote.—This bird's note was heard and then the bird seen and identified not far from the camp at Byfield.

Pardalotus melanocephalus. Black-headed Pardalote. — Seemed plentiful about Rockhampton and also noted at Yeppoon and Byfield. They are generally known as "Chip-chip" or "Chuck-chuck" from their characteristic call-note.

Cyrtostomus frenatus. Australian Sunbird. — We were very pleased to see the Sunbird—an inhabitant of the tropics—at Yeppoon. This place, not far within the tropic of Capricorn, must be near the southern limit of the bird's range. A very gay and active little bird with bright yellow breast, shortish tail and long curved bill like that of the Spinebill Honey-eater. As great a flower-lover, too, as the Spinebill, with similar quick flight and hasty movement, as it flits from flower to flower or hovers beside an open blossom to sip the nectar. In the sun the yellow plumage fairly shines and the male bird's blue chest has a metallic lustre. The female has no blue colour, the yellow reaching the throat. Both birds are olive-yellow above. We saw a nearly finished nest. It was attached to a piece of wire that hung on the verandah of a sea-side cottage—a dainty, long and slim, pensile nest with side entrance, grey in colour, composed of thin, dry vegetable material, little bits of Melaleuca bark and cobweb, and decorated with the brown borings of a wood-borer. The lining, of white downy substances, was perhaps from the seed-pods of plants. The female was bringing the lining and working it in while the male twittered approvingly close by. That appeared to be his only assistance. We could not photograph the bird at the nest that day as she ceased work about 10 a.m., just when the camera was in position, though she had been working fearlessly while Mr. Chaffer was fixing it up. We had to leave Yeppoon at 7 next morning, so a picture of the nest only was taken.

Zosterops lateralis. Grey-backed Silver-eye. A few were seen at Rockhampton.

Zosterops albiventris. Pale-breasted Silver-eye.—In the scrubs at Byfield and also at Yeppoon a species of Silver-eye, quite distinct from the common form (*Z. lateralis*) was seen on several occasions. These little birds were very quiet, only calling occasionally. Mr. Alexander had good views of them a few times, and several other members also saw them fairly well, but generally they kept to the leafy trees. Their backs were uniformly green, throats bright yellow, and underparts greyish-white. Only *Z. albiventris* answers to this description, and this species has only been found hitherto on islands off the Queensland coast. It is a pity that no specimens were obtained to settle the identity of these birds.

Melithreptus albogularis. White-throated Honey-eater.—Small lots were seen in different places. Some were dipping into the creek at Fairy Bower and many were seen in a flowering shrub at Glenmore homestead on the Fitzroy River. They are similar in appearance to the common *M. lunatus* of the south, but without the vermilion round the eye.

Myzomela sanguineolenta. Scarlet Honey-eater (Blood-bird).—These were fairly numerous at Rockhampton and about Byfield Creek near the camp the light little song of the male birds was generally to be heard.

Myzomela obscura. Dusky Honey-eater.—These very brown little Honey-eaters—dark brown above, reddish-brown below—were seen occasionally at Rockhampton and frequently at Byfield, and at Yeppoon they were plentiful in the scrub along the coast. In some of the flowering eugenia trees they were very active and noisy, and they were also feeding on the flowers of the mangroves. A bird was seen carrying nesting material to the upper part of a leafy tree.

Stigmatops indistincta. Brown Honey-eater.—This bird was very often seen and its loud cheery note still more often heard. In the Rockhampton Botanic Gardens they were plentiful among the flowering shrubs and plants. In the lovely garden at Gracemere some were busily exploring the blossoms of a begonia trained along the verandah of the homestead. Close to the camp at Byfield there was a turpentine tree of which they were very fond. On North Keppel Island they were extremely numerous. At Lloyd's farm, near Rockhampton a nest was shown to us hanging in a small bush only about a foot from the ground. It was a compact little structure of light-coloured material, lined with soft, white, downy substances and held two very light flesh-coloured eggs, practically spotless and with blunt ends.

Meliphaga lewini. Lewin (Yellow-eared) Honey-eater.—Very plentiful almost everywhere. Some nests were found, one of which was in an orange-tree. They are fond of orange-trees and on Tambourine Mountain, S. Queensland, have acquired the name of "Orange-bird." The bottom lining of nests at Byfield consisted of very soft, light-brown material looking like felt, which residents showed us came from the base of the leaf stems of a local Macrozamia or burrawong. The lining in nests about Sydney is often made of a white substance from seed-pods of plants in the vicinity. Birds use whatever suitable material the locality produces.

Meliphaga virescens. Singing Honey-eater.—This bird was seen by Dr. Chenery in trees on the bank of the Fitzroy River at Rockhampton.

Meliphaga versicolor. Varied Honey-eater.—This was the commonest bird on North Keppel Island, where it occurred in abundance in the mangroves and in the stunted eucalypts in the centre of the island and on the hillsides. It is a very lively, noisy species, constantly flying from tree to tree, and uttering a variety of fairly melodious notes, much resembling those of its allies *M. virescens* and *M. fasciogularis*. At first it was thought to be the latter species, but Mr. Alexander discovered a pool where numbers were coming to drink and bathe, and sitting down near it he got splendid views of them with his binoculars. The throat was in some cases almost pure yellow, in others streaked with brown in the centre, the rest of the underparts streaked brown and yellow. The upper parts were olive brown, with some yellow in the wings. Through the eye was a black line with a broad yellow band beneath. In some birds this band was separated from the yellow of the throat by darker colouring, but in others the two yellow areas seemed to blend. The fasciations of the throat so conspicuous in *M. fasciogularis* when a good view is obtained were entirely absent.

The late E. J. Banfield gives a splendid description of this lively Honey-eater's habits on Dunk Island in his *Confessions of a Beachcomber*, p. 105. The species does not appear previously to have been recorded south of that island so that the R.A.O.U. visit to North Keppel Island has greatly extended its known range to the southward. It is remarkable that though the bird is so abundant on this comparatively small island none were seen on the mainland.

Meliornis nigra. White-cheeked Honey-eater.—Mr. Chaffer saw a pair of these birds near a creek not far from the camp at Byfield on several occasions.

Myzantha garrula. Noisy Miner.—These birds were fairly common in forest country about Rockhampton and at Byfield. They are generally called "Mickies" in Queensland .

Entomyzon cyanotis. Blue-faced Honey-eater.—Many of these birds were observed in different places. In the Botanic Gardens at Rockhampton a pair was much concerned about a Nankeen Night-heron, and at length drove it away from the neighbourhood of a palm in which their nest was probably situated. Above the tents at Byfield in the outer foliage of a big bloodwood tree a large, pendulous, brown, bark nest was nearing completion, both birds sometimes being at the nest. This was the natural nest of this Honey-eater, which more frequently adopts the easier plan of making its nest in the old nest of some other bird.

Philemon corniculatus. Noisy Friarbird (Leatherhead). — Very plentiful everywhere on the mainland and also at North Keppel Island. A nest was seen in the Rockhampton Botanic Gardens.

Philemon citreogularis. Little Friarbird.—This smaller bird has not the knob on the bill characteristic of the larger Leatherhead. At Gracemere this Friarbird and Blue-faced Honey-eaters were busy together among the blue blossoms of the jacarandas, and the two species were seen in company elsewhere.

Anthus australis. Australian Pipit (Ground-lark).—Seen in most grassy localities including the hills on North Keppel Island.

Taeniopygia castanotis. Chestnut-eared (Zebra) Finch.—A pair was seen in the bushes on North Keppel Island by Mr. Alexander. It is somewhat remarkable that this inland bird should only have been met with on the island.

Stizoptera bichenovii. Banded Finch (Double-bar). — In most localities small parties were often seen in the bushes.

Aegintha temporalis. Red-browed Firetail.—Not observed so frequently as the Double bar, but common about Yeppoon.

Poephila cincta. Black-throated Finch.—A few small flocks were seen by the roadside on the drive to Olsen's Caves.

Oriolus sagittatus. Olive-backed Oriole.—Seen or heard at Fairy Bower and Olsen's Caves, near Rockhampton.

Chibia bracteata. Spangled Drongo.—Not numerous but seen in various places, including Fairy Bower, near Rockhampton. At Byfield their harsh notes were frequently heard.

Sericulus chrysocephalus. Regent Bower-bird.—In the scrub at Olsen's Caves Mr. Mackenzie came on a bower. He did not obtain a good view of the bird, but it was probably an immature male of this species, which is the only Bower-bird known to occur in the scrubs about Rockhampton. This bird's bower is very rarely found.

Corvus cecilae. Australian Crow.—Seen or heard flying over in most localities.

Strepera graculina. Pied Bell-Magpie (Currawong).—This was the last bird added to the list. One was seen from the train on the return journey from Yeppoon to Rockhampton.

Cracticus nigrogularis. Pied Butcher-bird.—These fine birds with Magpie plumage were plentiful in the forest country, and several nests were found. One near the Botanic Gardens at Rockhampton contained young birds. One a little way from the camp at Byfield was still being built. These birds must be ranked among our very finest songsters—their notes are particularly rich and clear.

Cracticus torquatus. Grey Butcher-bird.—Not so common as the pied bird and preferring scrubby localities. A nest with young birds was situated near our luncheon place at Olsen's Caves.

Gymnorhina tibicen. Black-backed Magpie.—Observed frequently sometimes seen feeding young. At Water Park Creek, Byfield, a pair of birds had a nest in the top of a Bangalow palm.

A Review of the Bird Life on Coomooboolaroo Station, Duaringa District, Queensland, During the past Fifty Years

By CHAS. A. BARNARD, Ex-President R.A.O.U., with additional notes by H. GREENSILL BARNARD, R.A.O.U.

Coomooboolaroo consists of about 170 square miles of country which lies about 20 miles west of the Dawson River, and about 25 miles from the junction of that river with the Mackenzie; below the junction the combined streams are known as the Fitzroy River.

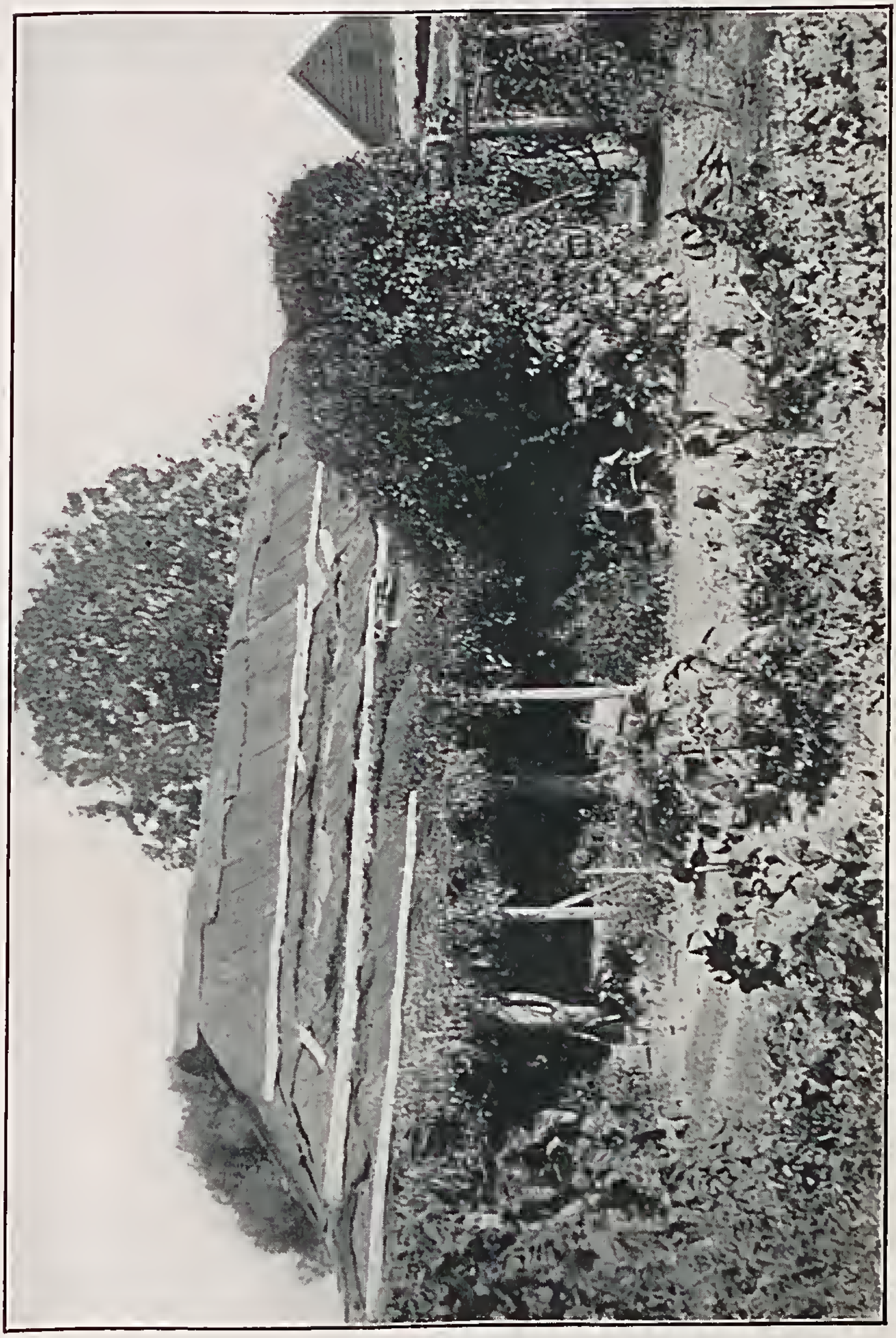
The station derives its name from two lagoons which are separated by a narrow strip of dry land in dry seasons, but are united in wet seasons. In the aboriginal dialect of the district, "Coomooboolaroo" signified "two waters." The homestead is built on a ridge adjacent to one of the lagoons, and overlooking it.

Coomooboolaroo Station must have been taken up in the fifties of last century, and stocked with sheep and a few cattle, but when we acquired it in 1873 the sheep had all been removed, and there were then under 400 head of cattle on the run.

Throughout the fifty years we have had the birds of the district under observation, and in the earlier part of that period the Barnard family contributed considerably to the knowledge of the habits and nidification of some of the rarer species. During these fifty years many changes have taken place in the numbers and distribution of certain species, owing chiefly, I should say, to climatic influences, but to some extent also to the stocking of the country with cattle. It has occurred to me that a review of the bird life of a particular district over such a number of years would be of general interest to Australian ornithologists, and in the following pages I give brief notes on the species that have been observed on the station, with special reference to those which have increased or decreased. In some cases I have suggested the probable reasons for the changes that have occurred.

Before dealing with the birds individually a brief account of the different types of country to which the notes refer seems to be desirable. The general class of country on the run is what we call "forest country," consisting of fairly open grassy flats along the creeks working up into higher and more thickly timbered ridges away from the creeks. The flats are timbered with various kinds of Eucalypts, while blue gums invariably line the banks of the creeks. In the flowering season (early spring) these are alive with the different species of Lorikeet.

The run is bounded on the south by a spur of the Expedition Range, in some of the gorges of which are small permanent springs. In a dry time these are fine places in which to observe a variety of Honeyeaters, Finches, etc. Numerous small gullies run out of the ranges at intervals to form the heads of the larger



Coomooboolaroo Homestead prior to 1903.

NATIONAL MUSEUM OF MELBOURNE

creeks that intersect the run in their course to join the Dawson. This is the type of country referred to in these notes as "rangy country."

There are a few large patches of "scrub" on the run. These are essentially *dry scrubs,* not at all like the scrubs found on the coast about a hundred miles away, which are tropical in appearance and growth. Our scrubs are composed of brigalow and belar trees (*Acacia harpophylla* and *Casuarina lepidophloia*), with a thick undergrowth of small shrubs of great variety.

Fifty years ago the creek banks were well protected by a heavy growth of grass and reeds, and at every bend in the creek were nice little waterholes, many of them practically permanent, full of fish, yabbies (crayfish), etc., providing food for the different kinds of Herons, etc. Now the stock have trampled away the long grass along the creeks, and the small waterholes have silted up and disappeared.

There were several swamps on the run, some of which when full covered about 20 acres and were about three feet deep. Looking back is seems to me that these swamps nearly always had water in them, and were covered with long green rushes, which afforded excellent cover for Swamp-Hens, Coots, and Ducks of various kinds. Now it is the exception for them to contain water. The seasons appear to have become much drier during the past 30 years, and there has not been what we call a good "wet season" during the last 14 years.

A very severe drought occurred in 1902, and certain species of birds disappeared altogether at that time. Some of these have reappeared and have almost or quite reached their former numbers. In that year also several species of western birds, including the Ground Cuckoo-Shrike, Yellow-throated Miner, Cockatoo-Parrot, and Shell Parrot, appeared for the first time. Some of these have been seen since, but others have not returned.

Emu (*Dromaius novæ-hollandiæ*).—Becoming much more numerous since the Eagles and Dingoes have been poisoned off. They are greatly blamed as carriers and distributors of prickly-pear as they feed on the fruit.

Brush Turkey (*Alectura lathami*).—Very plentiful in the scrubs, apparently more numerous since the blacks decreased. Occasionally these birds leave the scrub in flocks and wander about the forest country. I remember once we had a black boy out to look for horses, and some hours later he came up and asked for the gun. He said that he had driven a mob of Turkeys (about a dozen) home and then whistled up his dogs and put them up into the trees; then he came for the gun and shot several of them. The blacks say that once a Turkey flies off a tree, he does not alight upon another tree, but takes a long, sloping flight and settles on the ground, and that he will not fly up again even if the dogs are after him. In support of this statement, I may mention that once, when we were driving a mob of cattle, a Turkey flew up into a tree. A black boy rode under the tree and frightened it, and when it flew, galloped along behind, and was close up to it when it settled on the ground about two hundred yards away. It did not attempt to fly again, but just ran round in front of the horse, finally running into some bushes, when the boy jumped off and caught it.

Brown Quail (*Synoicus australis*).—Appears in good seasons when there is a flush of grass.

King Quail (*Excalfactoria chinensis*).—Plentiful in good seasons.

Black-breasted Quail (*Turnix melanogaster*).—Used to be frequent in the big scrub, and one nest was found about 1885 or 1886, but I have not seen one for at least 25 years.

Painted Quail (*Turnix varia*).—Is generally to be found in rough, brushy parts. Unlike the other quails, it appears to be stationary.

Little Quail (*Turnix velox*).—Common in good seasons when there is plenty of grass.

Plain Wanderer (*Pedionomus torquatus*).—One was shot over 30 years ago.

Red-crowned Pigeon (*Ptilonopus regina*). — A single specimen shot in the garden about 15 years ago is the only one ever seen here. They are more plentiful in the coastal scrubs.

Bar-shouldered Dove (*Geopelia humeralis*).—A fairly common bird in scrubby parts.

Peaceful Dove (*Geopelia placida*).—Always plentiful.

Diamond Dove (*Geopelia cuneata*).—Only a visitor, generally when drought is severe further west. During the 1902 drought they bred freely in all kinds of situations.

Green-winged Pigeon (*Chalcophaps chrysochlora*). — Occasionally seen in the big scrub.

Common Bronzewing (*Phaps chalcoptera*).—Quite numerous.

Squatter Pigeon (*Geophaps scripta*).—A plentiful species until about two years after the 1902 drought, when they almost suddenly disappeared from all over this part of the country. They are still to be seen along the coastal roads about 60 miles north of Rockhampton (about 130 miles from here). Some people have blamed the wild cats, but I think the disappearance was too sudden to be accounted for in that way.

Crested Pigeon (*Ocyphaps lophotes*).—Noted within the last few years on three occasions. Never seen until recently.

Wonga Pigeon (*Leucosarcia melanoleuca*).—Appears to be much more scarce than formerly. There are none now to be found in parts of the scrub where at one time we were sure of finding them.

Banded Landrail (*Hypotaenidia philippensis*).—Once fairly numerous in the long grass along the banks of lagoons and in swampy country, but now very rarely seen, owing, no doubt, to the long run of dry seasons and the heavy stocking of the country—a combination which is very detrimental to long grass and swampy conditions.

Little Crake (*Porzana pusilla*).—Formerly fairly common in the swamps.

Black-tailed Native-hen (*Tribonyx ventralis*). — Sometimes came about the lagoon in little flocks.

Eastern Swamp-hen (*Porphyrio melanotus*).—Plentiful in swamps when they get filled by rain and become covered with long rushes. Formerly nested freely.

Coot (*Fulica atra*).—Used to nest very freely in the swamps. Still often seen on the lagoon.

Little Grebe (*Podiceps ruficollis*).—Always a few on any permanent water, but as soon as any dam or swamp is filled they appear there as if they had come down in the rain, and begin to make their floating nests out of the rotting grass that has been covered by the water. Their partiality for freshly-filled waterholes is due to this, there being no suitable nesting material in permanent ones. I have never seen a Hoary-headed Grebe (*P. poliocephalus*) here.

Great Crested Grebe (*Podiceps cristatus*).—One was seen and shot on the home lagoon over 30 years ago.

Black Cormorant (*Phalacrocorax carbo*).—Frequent.

Little Black Cormorant (*Phalacrocorax ater*).—Frequent.

Little Pied Cormorant (*Phalacrocorax melanoleucus*).—Common. Nests in colonies in gum saplings when the swamps get filled.

Darter (*Anhinga novæ-hollandiæ*).—Almost always a few on the lagoon.

Pelican (*Pelecanus conspicillatus*).—Frequently visits the lagoon.

Marsh Tern (*Chlidonias leucopareia*).—A pair of these graceful birds appears at long intervals, flying backwards and forwards along the lagoon, with long sweeping strokes of the wing, about 10 feet above the water, and every now and then darting down into the water after small fish.

Red-kneed Dotterel (*Erythrogonys cinctus*). — Seen on two or three occasions.

Spur-winged Plover (*Lobibyx novæ-hollandiæ*).—A few visit us now and then. They are always plentiful about the swampy flats near Rockhampton.

Banded Plover (*Zonifer tricolor*).—Only seen here occasionally.

Golden Plover (*Pluvialis dominicus*).—Sometimes seen in flocks.

Black-fronted Dotterel (*Charadrius melanops*). — Always a few pairs along the edge of the lagoon. They nest some distance away from the water.

White-headed Stilt (*Himantopus leucocephalus*). — A little flock appears at long intervals on the lagoon, but never stays long.

Painted Snipe (*Rastratula australis*).—Seen singly or in pairs after rain.

Jacana (*Irediparra gallinacea*).—A very rare visitor on the water-lily leaves on the lagoon.

Australian Pratincole (*Stiltia isabella*).—Only seen one year when a good number were about the place.

Southern Stone-Curlew (*Burhinus magnirostris*). — These birds have become very scarce about here, although still plentiful in places nearer the coast. Many years ago it was quite a common thing to hear small flocks having a whistling concert close to the house at night, and also to see them in several places on the run, but now one is very rarely seen or even heard at night. The wild cats may be responsible for their disappearance for, being night birds, moving on the ground, they would be an easy prey.

Bustard (*Eupodotis australis*).—Only occurs as a visitor when drought conditions prevail further west, and the Plain Turkeys travel towards the coast.

Native Companion (*Megalornis rubicunda*).—There is generally a pair about the home lagoon, but many more are in evidence when the swamps have been filled. In one of the dry seasons one got so tame or hungry that it used to come round the house and pick up scraps of meat thrown out to it. They are very plentiful nearer the coast, where the swamps are more permanent.

White Ibis (*Threskiornis molucca*).—Often seen in small flocks about the swamps.

Straw-necked Ibis (*Threskiornis spinicollis*). — Frequently about the paddocks in flocks, generally containing about 50 birds, not often more than 100.

Glossy Ibis (*Plegadis falcinellus*).—A small flock of these birds has put in an appearance on very rare occasions.

Royal Spoonbill (*Platalea regia*).—Common, but I have not seen its nest in the district as it is not swampy enough.

Yellow-billed Spoonbill (*Platalea flavipes*).—Common, nesting in the swamps.

Jabiru (*Xenorhynchus asiaticus*).—Seen occasionally, sometimes a pair with one young bird.

Little Egret (*Egretta garzetta*).—Occasionally about the lagoon.

Plumed Egret (*Egretta intermedia*).—Odd birds sometimes about the lagoon.

White Egret (*Egretta alba*).—Generally about the lagoon.

White-faced Heron (*Notophoyx novæ-hollandiæ*).—Is always about and generally nests some distance from water, high up in forest trees.

White-necked Heron (*Notophoyx pacifica*).—Nests in the swamps.

Nankeen Night-Heron (*Nycticorax caledonicus*).—Is not plentiful, but there are always a few about in hiding.

Black Bittern (*Dupetor flavicollis*).—Many years ago this unobtrusive little Bittern was frequently seen along the banks of creeks, and several nests were found in the trees overhanging small waterholes. Now the cattle have tramped away the long grass, small bushes, etc., along the creeks and the small water holes have silted up and disappeared. These birds have disappeared also, and I have not seen one in this district for many years, though they are still found nearer the coast.

Black Swan (*Chenopis atrata*).—Occasionally seen on the lagoon. For several years they bred on an outlying swamp.

White-quilled Pigmy-Goose (*Nettapus coromandelianus*).—Formerly a common species often seen with young on the lagoon, it has now become scarce.

Wood Duck (*Chenonetta jubata*).—A common species, breeding regularly.

Whistling Duck (*Dendrocygna javanica*). — Formerly a common bird, now much scarcer.

Plumed Whistling Duck (*Dendrocygna eytoni*).—Formerly common, now scarce.

Black Duck (*Anas superciliosa*).—Always common, nesting both in trees and on the ground.

Chestnut Teal (*Virago castanea*).—Not very common.

Grey Teal (*Virago gibberifrons*).—Plentiful. On one occasion a nest in a hollow tree was investigated, and a goanna was found in it. After it had been killed, it was found that it had three unbroken Teal's eggs inside it.

Bluewing Shoveller (*Spatula rhynchotis*).—Rather rare, but has been found breeding.

Pink-eared Duck (*Malacorhynchus membranaceus*).—Fairly common at times.

White-eyed Duck (*Nyroca australis*).—Formerly very common, now scarce.

Spotted Harrier (*Circus assimilis*).—Years ago was often seen sailing along low down over the grass in the open paddocks near the homestead on the look out for lizards, snakes, etc. It is very seldom seen now. Only two nests were ever found here; one in an ironbark, the other in a bloodwood, each about 20 feet from the ground.

Swamp Harrier (*Circus approximans*). — Occasionally seen near swamps, but also over drier country. One very wet day, on looking out to see at what the dogs were barking, we saw a Swamp-hawk, looking very wet and miserable, busily engaged in tearing meat from a bone about thirty yards from the house: two of the dogs were standing barking a few feet away. Several times the Hawk turned on the dogs and made a rush at them with outstretched wings. His appearance was so formidable that they hastily retired and the Hawk returned to his meal.

Grey Goshawk (*Astur novæ-hollandiæ*).—Both the grey and the white forms of this bird have been seen on a few occasions.

Australian Goshawk (*Astur fasciatus*). — Fairly common. The young of this species are very bold and fearless, sometimes coming right in under a verandah after cage-birds, and sometimes tackling a half-grown fowl.

Collared Sparrowhawk (*Accipiter cirrhocephalus*).—This small species keeps to the timber, and is not much in evidence.

Red Goshawk (*Erythrotriorchis radiatus*).—This fine Hawk is now very seldom seen, and was always rather a rare bird. I believe we have the credit of being the first to discover its nest and eggs. The first nest was found as a result of the Hawk attacking a White

Cockatoo, whose loud screams attracted our attention. On our approach, the bird left the Cockatoo, which it had begun to devour, on the ground. I once saw one strike down a Black Duck when flying high in the air.

Wedge-tailed Eagle (*Uroaetus audax*).—This bird was at one time quite numerous, and it was not at all uncommon to see one swoop down on a Kangaroo-Rat or Stone-Curlew which had been disturbed by the cattle when we were driving a mob. We have also seen them kill Native-Bears, scrub Wallabies and Opossums. A dead Eagle was once seen hanging by its leg from a spout of a tree; it had evidently been trying to get an Opossum out of the hole and had caught its leg in the splintered wood surrounding the cavity. They are seldom seen now owing to the poisoning consequent on the passage of the Dingo Destruction Act.

Little Eagle (*Hieraaetus morphnoides*).—This was always a scarce bird here, though we have taken several nests. The remains of ground lizards were always seen about the nests, and these appear to be the principal food of this species. For several years we were puzzled by a dark brown Hawk, which flew off the nest on our approach. At length by visiting the nest very early in the morning, we succeeded in shooting the bird, which proved to be a very dark brown form of this species. This bird was a female, but as it was the only dark specimen shot, I cannot state whether the dark form is confined to this sex or whether dark males also occur.

White-breasted Sea-Eagle (*Haliaetus leucogaster*).—Frequents the rivers and lakes in this district. A pair breed regularly every winter at a lake 70 miles from here.

Whistling Eagle (*Haliastur sphenurus*).—A fairly common bird, nesting high up in gum-trees growing by lagoons and swamps.

Fork-tailed Kite (*Milous migrans*).—Very numerous here in the early days, though never known to breed. It is now very seldom seen, having apparently migrated westward. I think that as the western country became stocked with sheep, the Kites found a better food supply there than in the cattle country.

Square-tailed Kite (*Lophoictinia isura*).—This handsome Kite, though never a common species, was formerly generally in evidence in the nesting season, but of late years it seems to have become more scarce. These Kites appear to feed a good deal upon young birds. We have found the nest of the Fuscous Honey-eater, with the nestlings in it, in the Kite's nest. The twigs to which the Honey-eater's nest had been attached had evidently been broken off, and the nest carried off intact to that of the Kite. I have also seen the Kite, after circling about through the trees, fly up and hang on to a thick bunch of leaves in which there was a Finch's nest. The Kite put its head into the Finch's nest, so possibly they eat eggs as well as young birds.

Black-breasted Buzzard (*Hamirostra melanosterna*).—Often seen formerly, generally flying high in the air, but never found nesting. It has not been observed in recent years.

Black-shouldered Kite (*Elanus axillaris*). — Formerly frequently seen hovering over cleared country and dropping into the grass for mice or insects; now only seen at long intervals.

Crested Hawk (*Baza subcristata*).—This species is not often noticed on account of its retiring disposition, but appears to be holding its own. It is the only Hawk that I have known to attack a person climbing up to a nest: both birds will keep darting in very close to one's head.

Peregrine Falcon (*Falco peregrinus*).—Very rarely seen. Once one was observed attacking a flock of Wood Ducks, one of which was struck and fell to the ground dead.

Black Falcon (*Falco subniger*).—This Falcon was occasionally seen in former years, but none have been seen for many years past.

Little Falcon (*Falco longipennis*). — Fairly plentiful, generally about swamps. One of the fastest and most daring of the family and a great Quail catcher. One has been seen to decapitate a White-fronted Heron while on the wing. Once while working some timber out in the bush, I saw a Falcon start after a Little Lorikeet (*Glossopsitta pusilla*). They had a great race through the tops of the trees for about a hundred yards, then turned and came back towards the place where I was working and when they were quite close to me the Falcon made his catch. Almost at the same moment another Falcon, which had evidently been watching the race, darted down and tried to take the Lorikeet from the captor. In the scuffle the Lorikeet was dropped and flew up into some thick bushes, where it remained hidden while the Falcons were flying around. Usually there are some Butcher-birds about, and in such cases they hunt the hiding bird out, when the Falcon, being on the watch, has it in a flash. I have frequently seen the Butcher-birds helping the Falcons in this way.

Brown Hawk (*Ieracidea berigora*).—Common, and much in evidence in front of bush fires, where they catch grasshoppers and small game driven out by the fire. These Hawks are great snake killers, and may often be seen flying past with a snake dangling beneath them. Once when camped for a few days at a bore to look after the engine and pumping, I noticed a Black-throated Butcher-bird's nest in a tall dead tree not far from my camp. Just after arriving at the bore on the first day, I heard a Brown Hawk calling, and looking up, saw the Hawk flying away from the vicinity of the nest with the Butcher-birds in hot pursuit. Next day I was on the look out and heard the Hawk coming, and so did the Butcher-birds. The pair flew out to meet the enemy, but the Hawk ignored them, though they were attacking him savagely. He flew right on to the nest and away again with a young bird in his claws. Next day the performance was repeated, and the Hawk flew off in the same direction, probably to a nest. That was the last of the young birds, for the Hawk came no more, and the Butcher-birds kept away from the nest.

I was out at the same bore not long ago, and noticed that some kind of Hawk had been trying to build a nest on the top of the platform right up against the wheel of the windmill, which is an 18 ft. wheel on a 50 ft. tower. The mill was working all the time. There were a great many sticks on the ground at the foot of the tower, and a good heap up on the platform, but these had not been formed into a nest. At another bore I once saw a Crow's nest with nearly full-grown young built on the platform of a mill, but in this instance the mill was shut off and the wheel not turning.

Nankeen Kestrel (*Cerchneis cenchroides*).—Formerly a common bird, but never found breeding.

Osprey (*Pandion haliaetus*).—Many years ago a single specimen used to perch on a dead tree over the lagoon, and when a bony-bream came near the surface, it would swoop down, plunging right under the water, seldom missing the fish. Then it would rise from the water and fly away with the fish in its claws. It was once seen to rise with a small eel.

Boobook Owl (*Ninox boobook*).—Fairly common, and often flushed from hollow trees. It has been found breeding.

Winking Owl (*Ninox connivens*).—Fairly common. Several nests have been found.

Powerful Owl (*Ninox strenua*).—Not at all common, but seen on several occasions in the scrub. Both this species and the Winking Owl have the curious habit of keeping their night kill with them during the day. Being nocturnal birds, they should spend the day sleeping, but perhaps they are like the old black boys that used to camp out with us. They would often kill a Native Bear or goanna when going into camp and roast it straight away. Though they had as much bread, beef, etc., as they would eat for tea, if one woke up in the middle of the night and looked towards the fire, the old black would be gnawing away at the leg of a bear or some other dainty.

The Owls appear to hold their prey on the perch with one foot, and generally drop it if flushed. I have seen them with half-eaten Ring-tailed Opossums, Brush Opossums, Flying Squirrels and Flying Foxes, and once with a Frogmouth. I have never seen the Boobook Owl with anything though I frequently see them in their day camps.

White Owl (*Tyto alba*).—Formerly fairly common.

Masked Owl (*Tyto novæ-hollandiæ*).—One of these birds was caught at night at the house on a bird cage in a rat-trap set for the purpose. Tame Ring-neck Doves were constantly taken from the cage at night by Owls, probably both White Owls and Masked Owls, and were finally killed out.

Blue Mountain Lorikeet (*Trichoglossus moluccanus*).

Scaly-breasted Lorikeet (*Trichoglossus chlorolepidotus*).

These two species are numerous in flowering eucalypts.

Musk Lorikeet (*Glossopsitta concinna*). — Sometimes comes in large flocks, feeding in flowering trees.

Little Lorikeet (*Glossopsitta pusilla*). — Numerous in flowering eucalypts.

Yellow-tailed Black Cockatoo (*Calyptorhynchus funereus*). — Not much in evidence, but always to be heard about April, when they nest in gum trees along the creeks. I believe this is the only species of Black Cockatoo, which does not eat seeds, but lives almost entirely upon the larvæ of beetles. They dig these out by biting off the wood with their powerful beaks, and I have seen hardwood branches up to two inches thick which have been bitten off by them when extracting grubs from the centre of the limb.

Red-tailed Black Cockatoo (*Calyptorhynchus banksi*). — Occasionally appears in small flocks, feeding on the seed of bloodwood or scented gum, but does not breed here.

Glossy Black Cockatoo (*Calyptorhynchus lathami*). — I have not seen any for many years. They used to nest in the gum trees along the creeks, and were sometimes seen feeding in the scrubs on belar (*Casuarina*) cones.

White Cockatoo (*Cacatua galerita*).—Always plentiful. They seem to feed a good deal on the ground on grass roots, and small flocks may often be seen in the open paddocks near places where the grass is quite short.

Cockatoo Parrot (*Leptolophus hollandicus*).—Appeared and nested in numbers during the 1902 drought. Still seen occasionally.

Redwing Parrot (*Aprosmictus erythropterus*). — A common bird, nesting when the wattle is in seed.

King Parrot (*Aprosmictus scapularis*). — Frequently seen about rugged country.

Pale-headed Rosella (*Platycercus adscitus*). — One of our commonest Parrots.

Paradise Parrot (*Psephotus pulcherrimus*).—There used to be a few odd pairs on the run, but none have been seen since the 1902 drought. On Fairfield station, 70 miles away, they were plentiful about the year 1882, and were then first noted as nesting in termite mounds. There are none to be found now, though about three years ago it was reported to me that a male bird had been seen; as my informant was not familiar with the bird, he may have been mistaken. I think the severe drought of 1902 and heavy stocking of the country were responsible for their disappearance, as very little grass or herbage produced any seed for two or three years about that time.

Swift Parrot (*Lathamus discolor*).—One year these were seen in flocks feeding on lerp-scale on the trees.

Shell Parrot (*Melopsittacus undulatus*).—Appeared during the 1902 drought. Still seen occasionally.

Tawny Frogmouth (*Podargus strigoides*).—Fairly common, and is quite holding its own.

Owlet Nightjar (*Aegotheles cristata*).—These are occasionally flushed from hollow stumps when one is riding along, and appear to remain about the same in numbers.

Dollar-bird (*Eurystomus orientalis*).—Was very much more plentiful years ago than it is now. At one time they were to be noticed all along the creeks and swamps, and several of them were to be seen every year along the homestead lagoon nesting in the gum trees. Now they are only occasionally seen or heard, away from the homestead. What has caused the decrease? Has the continual heavy stocking of the country interfered with the breeding of cicadas, one of the principal foods of the Dollar-bird? Certainly the cicadas are not nearly so much in evidence as formerly, either by the number of cast skins on the trees, etc., or by the noise they make in the trees.

Azure Kingfisher (*Alcyone azurea*).—Before the creek banks became denuded of vegetation and the smaller water holes tramped out, these beautiful little streaks of colour were sometimes to be seen darting along between the banks from one hole to another, but none have been seen in this locality for many years past.

Laughing Kookaburra (*Dacelo gigas*).—These were greatly reduced in numbers by the drought of 1902, but appear now to have quite got back to their former numbers. Towards the end of the drought it was not uncommon to see several dead Jackasses under a tree where they had fallen from the night's roost.

Blue-winged Kookaburra (*Dacelo leachi*).—A common bird.

Forest Kingfisher (*Halcyon macleayi*).—A common summer migrant.

Red-backed Kingfisher (*Halcyon pyrrhopygius*).—Usually quite a rare bird, but in some seasons becomes common, nesting in holes in the banks of the creeks.

Sacred Kingfisher (*Halcyon sanctus*).—A common resident species, not migrating.

Bee-eater (*Merops ornatus*).—Appears about September, and nesting is in full swing in October. While these birds appear to become more plentiful, or at least more in evidence, about that time there are always a few to be seen throughout the winter months. I remember over fifty years ago, when we were living near Rockhampton, my father came in for his gun one day in a state of great excitement, saying that he had just seen a bird that was all the colours of the rainbow. Since that time this species has always been known to our family as the "Rainbow-bird."*

White-throated Nightjar (*Eurostopodus mystacalis*).—This appears to be the common Nightjar of the district, and its eggs have been found.

Spotted Nightjar (*Eurostopodus guttatus*).—Eggs of this species have been found, but I think it must be very rare. I can only ascribe one note to the two species, and I think this is the note of the former. The Large-tailed Nightjar (*Caprimulgus macrurus*) found further north has quite a distinct note.

Spine-tailed Swift (*Hirundapus caudacutus*).—Generally appears about October, and is seen occasionally during the summer.

White-rumped Swift (*Micropus pacificus*).—Small flocks are seen occasionally during the summer.

Pallid Cuckoo (*Cuculus pallidus*).—Appears about September and is common in forest country. Its eggs have been found in nests of the Leatherhead and the Fuscous Honey-eater.

Fantail Cuckoo (*Cacomantis flabelliformis*).—Appears in spring and is confined to brushy and scrub country.

Square-tailed Cuckoo (*Cacomantis pyrrhophanus*).—Seen occasionally in brush country.

---

*The name Rainbow-bird has been adopted as the most suitable vernacular by the Check-list Committee.—Editor.

Black-eared Cuckoo (*Owenavis osculans*).—A rare visitor.

Narrow-billed Bronze Cuckoo (*Chalcites basalis*).—Common. Its eggs have been found in nests of the Red-backed Wren, White-throated Warbler, and Banded Finch.

Green Bronze Cuckoo (*Lamprococcyx plagosus*).—Common. Its eggs have been found in nests of the Tree-Tit, White-throated Warbler and Yellow-tailed Thornbill.

Koel (*Eudynamis orientalis*).—A common summer visitor.

Channelbill (*Scythrops novæ-hollandiæ*).—Common at times. Young birds have been seen being fed by Magpies and Crows.

Pheasant Coucal (*Centropus phasianinus*).—These birds have been driven back into the rougher country and scrubs, where they appear to be holding their own. At one time all the big sandy bends of the creeks were covered with tall blady-grass, which afforded good cover for these birds, but now, owing to heavy stocking of the country, these places seldom have any long grass.

Welcome Swallow (*Hirundo neoxena*).—In the early days these birds used to nest about the kitchen, but now odd birds only appear in the winter and do not remain to breed. They are more plentiful nearer the coast.

White-backed Swallow (*Cheramoeca leucosternum*).—Only seen on one occasion a few years ago when a flock was flying about for one day.

Fairy Martin (*Hylochelidon ariel*).—Always plentiful, nesting under the banks of creeks and in caves, also in sheds and verandahs about the homestead.

Grey Fantail (*Rhipidura flabellifera*).—Scattered about in the scrubs and thick country near the ranges, an occasional visitor to the garden of the homestead.

Rufous Fantail (*Rhipidura rufifrons*).—A summer visitor formerly frequently seen in the scrubs, also seen in the garden at long intervals.

Willie Wagtail (*Rhipidura leucophrys*).—Always to be seen about the paddocks and in the garden, generally building in the same trees as Magpie-Larks, but often nesting under sheds about the homestead.

Restless Flycatcher (*Seisura inquieta*).—More or less plentiful about water-holes and swamps, and often seen in the garden.

Leaden Flycatcher (*Myiagra rubecula*).—This pretty little species is in evidence in the spring months when it nests along the banks of the creeks and in slightly brushy parts.

Black-faced Flycatcher (*Monarcha melanopsis*).—A few specimens were seen in the thick scrub many years ago, but I have not seen one for the past thirty years, possibly because I do not roam the scrubs as much as I did formerly, though I have been in the same kind of scrub in more recent years without seeing any.

Brown Flycatcher (*Microeca fascinans*).—Noticeable all over the country.

Red-capped Robin (*Petroica goodenovii*).—Generally appears about May, and one or two pairs are seen throughout the winter.

Rose Robin (*Erythrodryas rosea*).—Only found in thick scrub.

Hooded Robin (*Melanodryas cucullata*).—A fairly common species.

Yellow Robin (*Eopsaltria australis*).—Fairly common in the scrub and ridgy country.

Golden Whistler (*Pachycephala pectoralis*).—Fairly common in the dense scrubs, where it breeds.

Rufous Whistler (*Pachycephala rufiventris*).—Common in the forest country, but favouring the thicker parts. Its nests are frequently found.

Grey Shrike-Thrush (*Colluricincla harmonica*).—Formerly a very common bird in forest country and still numerous.

Rufous Shrike-Thrush (*Colluricincla megarhyncha*).—A rare bird, formerly present in the scrub, where its nest was found, but it has now disappeared.

Magpie-Lark (*Grallina cyanoleuca*).—Always to be seen about the paddocks and in the garden, nesting in the trees along the lagoon. Willie Wagtails generally build in the same trees.

Eastern Shrike-Tit (*Falcunculus frontatus*).—Fairly common, breeding in the tops of tall saplings.

Crested Bell-bird (*Oreoica gutturalis*).—This bird has practically disappeared from the station. Many years ago, when riding about, especially over dead timbered ridges, one was sure to hear their bell-like note. Now I cannot remember hearing one for years. The other day, when I was riding over some ridges fifty miles away, I heard one ringing, and it was like meeting an old friend. Cats may be responsible for the disappearance of this species, as the Bell-bird, being a ground feeder, would be an easy prey.

Eastern Whip-bird (*Psophodes olivaceus*).—There were formerly a few in the scrub, but the species has disappeared from the district.

Ground Cuckoo-Shrike (*Pteropodocys maxima*).—Appeared during the 1902 drought, but has not been seen since.

Black-faced Cuckoo-Shrike (*Graucalus novæ-hollandiæ*).—A common bird, nesting about October.

Little Cuckoo-Shrike (*Graucalus robustus*).—Also a common bird, but from its habit of keeping more among the leafy branches, is not so noticeable as the preceding species.

Great Caterpillar-eater (*Edoliisoma tenuirostris*).—A fairly plentiful summer visitor, arriving about November, and chiefly frequenting the scrubs. The natives considered that when they heard the loud cicada-like note of this species, "plenty big white eggs" (of Scrub-Turkeys) would be found, its arrival coinciding with the laying season of the Turkeys.

White-shouldered Caterpillar-eater (*Lalage tricolor*).—This little bird is much in evidence when the nesting season begins about October, when the male assumes his black and white coat.

Varied Caterpillar-eater (*Lalage leucomela*).—Formerly common in the scrubs, where it has been found nesting, but has not been seen in recent years.

Southern Fig-bird (*Sphecotheres vieilloti*).—Occasionally used to come into the garden for fruit.

Grey-crowned Babbler (*Pomastostomus temporalis*).—A common bird.

Ground Thrush (*Oreocincla lunulata*).—Occurred years ago in the Expedition Ranges.

Orange Chat (*Ephthianura aurifrons*).—Appeared in small flocks during the 1902 drought.

White-throated Warbler (*Gerygone olivacea*).—A fairly common species. The Bronze Cuckoo commonly lays its eggs in the nests of this bird.

Weebill (*Smicrornis brevirostris*).—A common bird in forest country, breeding freely.

Little Thornbill (*Acanthiza nana*).—Common in the scrubs, nesting in the tops of the brigalow trees.

Brown Thornbill (*Acanthiza pusilla*).—Formerly fairly common in the scrubs.

Yellow-tailed Thornbill (*Geobasileus chrysorrhous*).—Fairly common in brush country, frequently found nesting.

White-browed Scrub-Wren (*Sericornis frontalis*).—Formerly common in the edges of the scrub.

Speckled Warbler (*Chthonicola sagittata*).—Frequent in brush country: it formerly nested on the ridges.

Brown Song-Lark (*Cinclorhamphus cruralis*).—This fine bird was at one time a regular visitor, but now it is very seldom seen. Is it that the seasons have been so dry of late years that the scarcity of grass has driven the bird to more favourable localities, or has it been starved out?

Rufous Song-Lark (*Cinclorhamphus mathewsi*).—Always about, but not much in evidence until there is a good crop of grass, when nesting begins and their beautiful song is heard.

Tawny Grass-bird (*Megalurus galactotes*).—Formerly much in evidence in some seasons, and on one occasion found nesting.

Australian Reed-Warbler (*Acrocephalus australis*).—Chiefly seen on migration, but has been found nesting.

Fantail-Warbler (*Cisticola exilis*).—A summer migrant, formerly often seen in long grass, but nowadays not often seen.

Variegated Wren (*Malurus lamberti*).—Fairly common in the scrubs.

Orange-backed Wren (*Malurus melanocephalus*).—Previous to the big drought of 1902 this wren was plentiful everywhere there was long grass, and one family was always close about, if not in, the garden. After the break-up of the drought it was about three years before any were seen in the neighbourhood, and now, over twenty years since the drought, they are still very scarce. In 1903 I noticed that they were very plentiful in the long grass a little north of Rockhampton, less than a hundred miles away.

White-breasted Wood-Swallow (*Artamus leucorhynchus*).—This showy species was at one time always to be seen along the lagoon, nesting in old nests of the Magpie-Lark, but for some reason none have been seen about the homestead for a good many years, though they are to be seen within a few miles of the place.

White-browed Wood-Swallow (*Artamus superciliosus*).

Masked Wood-Swallow (*Artamus personatus*).

These two species appear together in large flocks, generally about October, and, if weather conditions are favourable, commence nesting operations at once. They show a preference for freshly burnt country. On rare occasions the two species have been found inter-breeding.

Black-faced Wood-Swallow (*Artamus cinereus*).—A common bird most of the year.

Dusky Wood-Swallow (*Artamus cyanopterus*).—A common bird, but never seen in flocks like some of the other species, except when going to roost at night, when several dozen of them may be seen clinging in a bunch to the black side of a tall burnt stump or beneath the horizontal branch of an ironbark tree. It is a moot question among bushmen whether they all get a footing or hang on to each other like a swarm of bees.

Little Wood-Swallow (*Artamus minor*).—This little bird likes a dead-timbered ridge, where the small trees have been burnt off and blackened, so that it has plenty of colour protection. It nests in a burnt-out hole in the side of a tree, or in a spout of a hollow log.

White-headed Tree-runner (*Neositta leucocephala*). — Fairly numerous; found nesting.

Brown Tree-creeper (*Climacteris picumna*).—Common throughout the forest country. Some years ago, when cyaniding Opossums was allowed, I had set a bait of dry oatmeal at the foot of a tree. In the morning I tipped the bait over and rubbed it into the dust with my foot. Happening to pass the tree again in the afternoon, I found a dead Tree-creeper lying where the bait had been. It must have been picking up the grains of oatmeal and got a little cyanide.

White-throated Tree-creeper (*Climacteris leucophaea*). — Fairly common in scrubs and range country, where it has been found nesting.

Mistletoe-bird (*Dicaeum hirundinaceum*).—Common.

Red-tipped Pardalote (*Pardalotus ornatus*).—Keeps to the tops of big trees. We never discovered its nesting place.

Spotted Pardalote (*Pardalotus punctatus*). — This species also occurs, but we have never found its nest.

Red-browed Pardalote (*Pardalotus rubricatus*). — This species is seldom seen, but its note is not infrequently heard. Many years ago we found its nest in the bank of a creek.

Black-headed Pardalote (*Pardalotus melanocephalus*). — This is much the commonest of the genus, and the sandy banks of the creeks and smaller water-courses are full of their burrows. They are very partial to newly-dug holes, and often, if a post hole is left open for half an hour, there will be a tunnel started in the side of it. They also utilise the bottle-necked nests of the Fairy Martin; one pair has nested for four years in succession in a Martin's nest under the roof of our milkers' calf pen.

Silver-eye (*Zosterops sp.*).—At times Silver-eyes are numerous in the scrubs, and they used to come into the garden for mulberries and other berries.

White-naped Honey-eater (*Melithreptus lunatus*).—Common in the rangy country.

White-throated Honey-eater (*Melithreptus albogularis*).—Common in forest country.

Striped Honey-eater (*Plectorhyncha lanceolata*).—A common and useful species. I have frequently seen them picking the scale blight off the garden shrubs.

Scarlet Honey-eater (*Myzomela sanguineolenta*). — Noted chiefly when the trees are in bloom, when it is common.

Regent Honey-eater (*Zanthomiza phrygia*). — Was plentiful one season, but has not been seen again.

Brown Honey-eater (*Liehmera indistincta*).—Formerly very common, often breeding in the garden.

Fuscous Honey-eater (*Meliphaga fusca*).—A common bird.

Lewin Honey-eater (*Meliphaga lewini*). — Common in scrubby country.

Singing Honey-eater (*Meliphaga virescens*).—Is only seen in one locality on the station. The species is numerous about a small patch of open country in the middle of a patch of brigalow scrub twenty-five miles square. This patch of open country is dotted about with clumps of brigalow, which bear a certain amount of mistletoe, to which the bird is very partial. As soon as one comes within sight of the open country their loud cheery note is heard. Although there is mistletoe in other parts of the scrub, the birds are not in evidence.

Yellow-faced Honey-eater (*Meliphaga chrysops*). — Formerly fairly common, but now scarce.

White-eared Honey-eater (*Meliphaga leucotis*).—Was fairly common at one time, chiefly about the hills.

Yellow-tufted Honey-eater (*Meliphaga melanops*).—Was formerly very common in the scrubs, but has now entirely disappeared.

Noisy Miner (*Myzantha melanocephala*).—A very common bird.

Yellow-throated Miner (*Myzantha flavigula*).—Appeared during the 1902 drought, but has not been seen since that time, though they are plentiful at Fairfield, 70 miles away. Evidently we are near the dividing line between the habitats of the two species.

Blue-faced Honey-eater (*Entomyzon cyanotis*). — A common and useful species frequently seen busily picking scale off the garden shrubs. It usually nests in deserted homes of Babblers, but occasionally builds its own nest.

Noisy Friar-bird (*Philemon corniculatus*).—A very common bird.

Little Friar-bird (*Philemon citreogularis*).—Very common.

Australian Pipit (*Anthus australis*).—Like the poor, is always with us.

Horsfield Bush-Lark (*Mirafra horsfieldi*).—A visitor which in some seasons is very numerous.

Diamond Firetail (*Zonaeginthus guttatus*). — Seems to be more plentiful than formerly.

Chestnut-eared Finch (*Taeniopygia castanotis*).—Also seems to be commoner than in former years.

Banded Finch (*Steganopleura bichenovii*). — Very plentiful at times, nesting in orange trees in the garden.

Chestnut-breasted Finch (*Donacola castaneothorax*).—Was very plentiful years ago, nesting in the long grass.

Plum-headed Finch (*Aidemosyne modesta*).—Appear in large numbers wherever the season is good enough to produce a crop of long grass, when they nest in the big tussocks of grass and the low bushes.

Red-browed Firetail (*Aegintha temporalis*). — Fairly common in scrubby places.

Black-throated Finch (*Peophila cincta*).—Fairly common in forest country.

Green-backed Oriole (*Oriolus sagittatus*). — Common in scrubby country.

Spangled Drongo (*Chibia bracteata*). — Generally in evidence in summer, but chiefly noticed when on migration.

Apostle-bird (*Struthidea cinerea*). — About the year 1882, my brother, H. G. Barnard, and I made a pack-horse trip to Fairfield, a station about seventy miles to the south, and there we made our first acquaintance with this bird and procured a set of eggs. A year or two afterwards a family appeared on this station, and eggs were taken. From that time they have increased until they have become one of the commonest birds in the district, and every station has its "happy family" of from a dozen to fifty birds; which often come to the door to be fed on bread-crumbs, etc., and will frequently take food from a person's hand. They have crossed the Dawson River and are common as far east as Edungalba, but do not yet appear to have crossed the Gogango Ranges.

Spotted Bower-bird (*Chlamydera maculata*).—Is not very noticeable, keeping as it does to the scrubby parts, but whenever any small fruits begin to ripen in the garden, it puts in an appearance.

Regent Bower-bird (*Sericulus chrysocephalus*).—A male bird was seen in the garden during the 1902 drought, and a dead female was picked up about the same time. They have never been seen on any other occasion.

Australian Raven (*Corvus coronoides*).—Occurs here.

Australian Crow (*Corvus cecilae*). — Plentiful everywhere, and much blamed for spreading prickly pear over the country. On one occasion I climbed a gum tree for a crow's nest, using the tomahawk to cut steps. To my surprise, the bird did not fly off when I got close up to the nest, and when just under the nest, I quietly put my hand up and caught the old bird firmly across the back. I lifted her off carefully, and there were five eggs in the nest nearly fresh; had they been just hatching, it would have been easier to understand why the bird sat so closely.

Little Crow (*Corvus bennetti*).—Also occurs here.

White-winged Chough (*Corcorax melanorhamphus*).—Always common, and does not appear to have altered in numbers. It breeds here and usually lays from 5 to 7 eggs.

Pied Bell-Magpie (*Strepera graculina*).—Formerly very common and used to breed in the ranges. It is not now so common, but is still present in the ranges.

Pied Butcher-bird (*Cracticus nigrogularis*).—Very common

Grey Butcher-bird (*Cracticus torquatus*).—Appears to have become more numerous than formerly. At one time they were never seen or heard very close to the house, but now they are frequntly about the garden, and the younger birds come on to the verandah. Occasionally they take to feeding on chickens, and have to be shot.

Black-backed Magpie (*Gymnorhina tibicen*).—Very common. They were greatly reduced in numbers by the drought of 1902, but appear to have quite got back to their former numbers now. Towards the end of the drought Magpies were often seen on the ground too weak to fly.

Bird Notes from Willis Island*

By J. HOGAN, Meteorological Observer at Willis Island during the 1922-3 and 1923-4 Cyclone Seasons.

(Communicated by A. J. CAMPBELL, C.M.B.O.U., etc.)

(1) SOOTY TERN (*Sterna fuscata*).

These birds were the most numerous on the island, though their numbers changed from time to time. Among the flocks resting during the days on the lower grassed areas, at the time of our arrival in October, 1922, were only a few young birds, and these had almost reached the flying stage. Throughout every night of the six months season, with the exception of four successive nights in March, 1923, when heavy gales prevailed, large numbers of Sooty Terns hovered in a long line over the island, screeching incessantly. They commenced this nightly performance late in the afternoon, and their screeching continued till shortly before dawn. Towards the middle of December the number of Sooty Terns about the island during the day time showed a rapid falling off, and after a few more days it was seen that they had left altogether during the day time; but they never failed to return towards evening in large numbers to hover overhead. During the last week of December, 1922, the numbers screeching overhead were particularly large, and in walking round the beach one evening I saw in the moonlight that the large areas of sand at the N.W. end were covered with dense masses of these birds without causing any apparent diminution in the numbers hovering overhead.

Towards the middle of February, 1923, the Sooty Terns again frequented the island by day, at first confining themselves to the beaches, and it was not until the middle of March that they were noticed on the grassed areas. In April the nesting season began; the first egg was found on April 12th. Many eggs were destroyed by land-crabs and Land-Rails. One rookery in particular was observed, and it was noticed that within five days after the eggs were laid (and some hundreds were laid in a small area), not one remained unbroken.

The habits of the Sooty Terns during the 1923-4 season furnished some contrasts to those of the previous season. Whereas in November, 1922, scarcely a young bird was to be seen, in November, 1923, the island was practically covered with young. They were distributed over the grassed areas in flocks, and showed various stages of growth from birds a week or so old to others that could fly. The presence of the parent birds, some

---

*These observations extend over the periods from October 29th, 1922, to April 28th, 1923, and from November 14th, 1923, to May 7th, 1924, and continue the observations made by Capt. J. K. Davis, *vide Emu*, XXII., p. 181.

on the ground among their young, and some hovering over them, helped to swell their numbers, and while on the wing they kept up an incessant screeching. Before they were able to fly, the young birds sought shelter from the hot sun under bushes, tufts of grass, etc., and they used to pack closely together against the walls of our living quarters to take advantage of the shade afforded by the canvas awnings. During December, as in the previous year, their numbers fell away rapidly. Unlike their habits in that season, the Sooty Terns did not at first hover overhead in a long line at night. It was not until December 30th that I noticed a few birds attempting this, but their efforts were short lived.

All the young had disappeared by the end of the year, and thence Sooty Terns became gradually more scarce by day and more numerous by night. During February it was a rare thing to see even one by day, while their number by night was never very great until the middle of March, when they suddenly became very numerous. A few days later a group was observed on the beach for the first time in 1924, and on March 20th they moved their position to the grassed areas, a sign that their nesting season was approaching. The first egg was found on April 8th, and from that day until we left on May 7th they continued to lay in great numbers, and we found their eggs very good eating. The groups of birds when nesting were continually moving their positions, but they finally established themselves in extensive rookeries, which, at the time of our departure, covered large portions of the grassed areas.

(2) NODDY TERN (*Anous stolidus*).

The Noddy Terns were fairly numerous during both seasons; their numbers changed from time to time, but unlike the Sooty Terns they never entirely abandoned the island. On our arrival in October, 1922, we found the nesting season well advanced, and nests were found scattered over the whole of the grassed areas. The Noddies made it a practice of grouping on the beach just above the water's edge, and sometimes the whole beach was fringed with a line of these birds. At night the groups were larger and sometimes intermingled with Sooty Terns and Brown Gannets. Early in February, 1923, the Noddy Terns commenced nest building, and in this they were very industrious. Nesting went on right into April, but some were finished by the middle of February, while a month later the number of birds nesting was large, and distributed all over the grassed areas. I saw a few nests made in the bare sand, but a few feet only from the edge of the grassed portion of the island. The first egg was seen on February 17th, and the first young bird on March 25th.

On our arrival for the next season in November, 1923, I was surprised to see so few Noddy Terns, while only one or two young birds were there, and they were well advanced. It was not until towards the close of January, 1924, that their numbers started to increase, and nesting operations commenced early in

February. The first egg was found on February 7th. But even in March—a month later—it was strange that so very few nests had been built when the number of Noddy Terns was considered. For some reason building had stopped, while the majority of eggs laid were grouped together near the N.W. end of the island, and it was among the nests in that vicinity that two young birds were found on March 25th. Early in April, 1924, nesting recommenced, this time in earnest, and for a couple of weeks Noddy Terns were very industrious. During the second week of April many eggs were laid, and by the close of that month, nests, each containing one egg, were scattered thickly all over the island. Nest building continued even into May. Many nests were seen on bare sand and among the coral rubble, but they were always within about 6 yards of the edge of the grassed areas and safely above the high-water mark. Noddy Terns resented the presence of intruders near their nests, and some flew viciously at the heads of members of the party on Willis Island, while strange birds always got an unpleasant reception from them. On one occasion I saw a Noddy Tern when disturbed on its nest, pick its egg up and fly off, carrying the egg to a new position.

(3) CRESTED TERN (*Sterna bergii*).

This bird was first noticed in December, 1922, when flocks of about a dozen were observed flying at some little distance from the island; while flying they made a shrill cry. During January, 1923, small flocks were almost daily observed flying backwards and forwards over the island, but it was not till March that the Crested Terns were seen resting on the island. They sat in small groups on the beach, but up to the time of our departure at the end of April, 1923, there was no sign of their nesting. Throughout the 1922-3 season not more than about two dozen of these birds were observed at any one time.

During the next season the first Crested Tern was observed on December 6th, 1923, and not more than a few frequented the island until the end of January, 1924. During February, not only did their numbers increase, but they were more frequently seen. They were most numerous during March, when on 13th I counted at least 60 resting on the exposed reef platform at a very low tide. During the time they were numerous they were noisy also, particularly about dawn, when their short harsh cries, as they flew high over the island, were very noticeable. During April their numbers decreased. On April 19th the first eggs were seen, when two nests were found close to where a group of Sooty Terns was nesting.

(4) BLACK-NAPED TERN (*Sterna sumatrana*).

This bird was first observed on November 25th, 1922, and a few days later two were seen on the beach. During December, 1922, flocks of about 10 or 12 were frequently noticed, sometimes flying over the sea some little distance off, and sometimes resting on the beaches. During January and February, 1923, they disappeared, and not until March 3rd were they seen again. The next visit to the island was on April 24th and 25th, when two were noticed flying about. These little birds were not seen during the 1923-4 season until January, 1924, but thence until we left in May they frequented the island at intervals. They were to be seen chiefly in small groups flying over the sea round about. When resting on the island they frequented the beach at the S.E. end only. During March, 1924, they were absent for some weeks, but were to be seen throughout April, and on May 3rd I counted a dozen. I do not think their numbers at any time exceeded 20.

(5) ROSEATE TERN (*Sterna dougalli*).

The only occasion on which a Roseate Tern was observed was on the afternoon of January 19th, 1924, when a single bird was on the beach among a group of Black-naped Terns.

(6) BROWN GANNET (*Sula leucogaster*).

Brown Gannets were fairly numerous during the 1922-3 season, much more so than the Masked species, and when nesting they frequented the lower portions of the grassed areas, but particularly those on the windward or eastern side. The nesting season was in progress on our arrival in October, 1922, and by December 7th most of the young birds were fully grown, but even on that day I saw at least two birds still sitting on eggs.

In March, 1923, the Brown Gannets nested again. Early in that month they became more numerous and grouped together in a rookery at the north end of the island and on the windward side, and here the first egg was found on March 10th. A few days later eggs were numerous, and nesting operations gradually extended down the eastern side of the grassed areas. Brown Gannets assembled in small groups on the beach by day, while at night these groups were larger. On very few occasions did I see a Frigate-Bird attack a Brown Gannet, but it was a common sight to see some Brown Gannets following a Frigate-Bird as it chased a Masked Gannet in the hope of obtaining a fish disgorged by the pursued bird. In this they were sometimes successful, while on one occasion I saw a Brown Gannet snap a fish away from the bill of a Frigate-Bird.

Brown Gannets were again nesting on our arrival in November, 1923, but this time I noticed that their numbers were decidedly smaller than during the nesting of November, 1922. In February, 1924, they began to increase, and a number took up a position in their old rookery at the northern end; the first egg was found on February 22nd. Although more nests were built in this vicinity only two eggs were found up to the middle of March. As in the case of the Noddy Terns, nesting was recommenced later, for during the latter end of March, many nests were built at the opposite end of the island, and by the end of March completed nests were scattered right along the windward side, and generally close to the edge of the grassed area. April, 1924, showed a still greater increase in numbers, and by April

9th many nests contained two eggs. The first young bird was found on that day, but up to May 4th no more were observed.

(7) MASKED GANNET (*Sula dactylatra*).

Masked Gannets on the island were divided into two rookeries, the smaller on the beach about half-way down the eastern side, the larger, not so compact, was spread out over the large areas of bare sand at the northern end. On our arrival in October, 1922, young were seen in all stages of growth, but no eggs remained. The Masked Gannet was the chief victim of the preying Frigate-Bird, and when set upon it showed great reluctance to land anywhere but in its own rookery, and it would allow itself to be harassed until it found safety there. During March, 1923, as the nesting season approached, the Masked Gannets were to be seen grouped in their rookeries in pairs. The first egg was found on April 14th, and the nest containing it was not very far above high water mark, and liable to be washed by the sea should heavy weather accompany a spring tide.

I found on arriving in November, 1923, that the Masked Gannets still adhered to their two established rookeries of the previous season. All the young were hatched before the end of Novmber. As the season advanced the rookeries by day were sometimes deserted, but the birds always returned at night. The first egg of the early 1924 nesting season was found on April 15th. On April 25th a nest was found to contain two eggs, but a few days later I noticed that this nest had been washed by the high seas and the eggs destroyed.

(8) RED-LEGGED GANNET (*Sula sula*).*

The first Red-legged Gannet was noticed on December 1st, 1922. On December 19th two birds visited the island, but two days later I found a number of them established at the southern end of the higher part of the island, and they maintained their position there for the remainder of the season. It was characteristic of them that they never rested on the ground like the other species of Gannets, but perched on small bushes, etc., often spending the night on the stays of the masts, the wind-vanes, etc. When first seen on December 21st, Red-legged Gannets were intermingled with numbers of Frigate-Birds. The Frigate-Birds disappeared a few days later.

On returning to Willis Island in November, 1923, I found that the Red-legged Gannets had increased greatly during my six months' absence. Many immature birds were seen, but no very young ones, nor was there any sign of nests. The majority frequented that portion of the island where they were seen the previous season, but increased numbers caused them to spread out and smaller groups occupied other parts where bushes afforded them a roosting place. (The officer in charge of the station during the middle of 1923 mentioned that he noticed the Red-legged Gannets first on September 22nd.) These birds left the island during the day time--sometimes very few remained—and returned towards evening, and then amid much loud screeching they fought for roosting-places, whether on the bushes, or high up on the aerial, or the tops of the masts. During the first few months of 1924 their numbers decreased. On the afternoon of March 13th there was not a Red-legged Gannet on the island, but a few always returned to spend the night on the bushes. During April they increased slightly in numbers.

---

* *S. piscator* of most authors.—A.J.C.

These Gannets did not nest on Willis Island during the two seasons I was there, nor was there any sign of nests having been built.

(9) WEDGE-TAILED SHEARWATER (*Puffinus pacificus*).

During our early months on Willis Island "Mutton-Birds" were very numerous, and it was a common sight to see them at night time sitting in groups on the paths, while others were scattered on small sand patches all over the island; and one could not get away from the depressing moaning noise made by them. The whole of the grassed areas of the island was riddled with the burrows of these birds. Several young birds were found during February and March, 1923; some of them were killed by the land crabs which found their way into the nests. It was unusual to see a Mutton-Bird emerge from its burrow in sunlight, but on a few occasions they did so; while on January 14th (a rainy day) numbers were seen flying about during the afternoon. Towards the end of March, 1923, Mutton-Birds were not so numerous, and there was very little noise from them during the nights; while a month later most of them had left the island.

During the 1923-4 season the habits of these birds were similar to those of the previous season, and their numbers, judging by their noise at night, about the same. The officer in charge during the middle of 1923 remarked that he first saw the Mutton-Birds on August 27th, about which time they evidently returned for the nesting season. As in the previous season a number of birds were seen flying about during the day time towards the end of January. Up to May 7th, when we left the island, the Mutton-Birds remained, but they were fewer, and their moaning noise at night had ceased.

(10) LESSER FRIGATE-BIRD (*Fregata ariel*).

During the early part of the 1922-3 season, it was usual to see three or four Frigate-Birds hovering over the island, and towards the middle of December they suddenly increased, and for a few days they gathered on the island in large numbers, among the Red-legged Gannets. It was noticed that at this time although such numbers of Frigate-Birds were about, the Masked Gannets were free from their attacks. On December 24th, I found that the Frigate-Birds had almost entirely disappeared; none remained on the bushes, and on walking round the island that evening I counted only four. The Frigate-Birds did not become numerous again during the season, though up to half a dozen could be seen any day hovering overhead, and subjecting the Masked Gannets to persistent attacks. They often rested on the tops of the masts or posts, but were not again seen on the ground or the bushes. In chasing the Gannets they were not always successful in obtaining a meal; on many occasions I saw the Gannets land safely without having disgorged any fish. These birds sometimes chased one another, and were very persistent in their efforts to make a more fortunate companion disgorge a fish which he had plundered from a Gannet.

Frigate-Birds frequented the island during the whole of the 1923-4 season in varying numbers. They were numerous from January 22nd to 24th, 1924, when numbers of them settled for those few days on the ground, and the small bushes towards the S.E. end. Their favourite positions when resting were on the aerial and the tops of the wireless masts, and they fought among themselves and with the Red-legged Gannets for these positions. During this season I noticed them more frequently chasing Brown and Red-legged Gannets, but the Masked Gannets were their chief victims. The Frigate-Birds were most active during the afternoon and evening, in search of food, when the Gannets were returning to the island for the night.

There was no sign of the Frigate-Birds nesting on the island.

(11) SACRED KINGFISHER (*Halcyon sanctus*).

Very few Sacred Kingfishers were seen during my first season on Willis Island. During November, 1922, and the early part of December two or three were noticed darting about the island or perched on the stays of the masts. But from December 17th, 1922, there was no sign of them until March 2nd, 1923, when a single bird returned to the island. Three of them were seen on March 22nd, while a few days later four Kingfishers were noticed on one of the stays.

The first Kingfisher for the 1923-4 season was seen on November 29th, but until the following March these birds were not again noticed on the island. Their return was heralded on March 3rd by an isolated bird, which flew into the hut. On the next day four were seen, and thence until early in April a few frequented the island. But on April 5th quite an invasion took place. It was a rainy day, and increasing numbers of these pretty birds sought shelter around the huts. In the afternoon 76 of them were counted at one time, and it is safe to say that they numbered over 100. They disappeared during the night; only four remained next morning. On April 12th, a week later, and another rainy day, the Kingfishers again suddenly visited the island in numbers, I should say, approximating those of the previous Saturday. Again they disappeared during the night, leaving only a few behind, and until our departure, three or four were always seen about the island. During the evenings of those two days, when the Kingfishers were most numerous, we had to close the doors and windows against them, for they were continually flying indoors, attracted by the lamp.

(12) LAND-RAIL (*Hypotænidia philippensis*).

It was difficult to estimate the number of Land-Rails on the island. Some lived in the vicinity of the huts and became comparatively tame, running inside in search of crumbs; but others frequented the other parts of the island, and were far from tame, as they darted off quickly at the least cause for alarm. Early in November, 1922, I came across a Rail's nest containing two eggs among a pile of boxes, while it was evident that another nest existed under the corner of the living quarters. The Rails were often seen emerging from the burrows of Mutton-Birds, and in these, I should say, were their chief nesting-places. About the middle of January, 1923, two rather large young birds were observed on different occasions darting quickly through the grass. The Rails were very quarrelsome among themselves, particularly when feeding; they were very useful in cleaning up the scraps put out for them. Always numerous about the huts in the daytime, they were never seen after dark, but they were astir at the first sign of dawn.

During the 1923-4 season, the first young bird was seen on February 11th. It was black, and not more than a few days old. For the remainder of the month I often noticed a young bird following its parent through the grass.

(13) EASTERN GOLDEN PLOVER (*Pluvialis dominicus*).

The Golden Plovers were seen chiefly on the beaches and on the exposed rocks on the eastern side, when the tide was low. There they found their food, for they ran along the edge of the watr picking among the sand after each wave washed the beach, while at low tide they waded in the shallow water in search of food. A single bird was often seen on the higher part of the island during December, 1922, and towards the end of the year a few of them came quite close to the house. From then on, two or three Plovers were generally mixed with the Land-Rails, which frequented the open space in front of our living quarters, and fed on scraps, etc.

On returning to the island in November, 1923, I found that several Plovers frequented the hut's surroundings, and even went inside for crumbs. Their habits were similar to those observed during the previous season; they were seen chiefly on the beaches and exposed reef platform. Two or three of them throughout the season fed with the Land-Rails, but they were more timid than the quarrelsome Rails and had often to seek safety from them in flight.

There were perhaps two dozen Plovers all told.

(14) TURNSTONE (*Arenaria interpres*).

Not more than a dozen Turnstones frequented the island during both seasons. Their habits were similar to those of the Golden Plover in that they were seen on the beaches and exposed reef platform in search of food; but unlike the Plovers they were never seen on the higher ground; they confined themselves to the beach and the very edge of the grassed area.

(15) RED-TAILED TROPIC-BIRD (*Phæthon rubricaudus*).

A Red-tailed Tropic-Bird was first seen on December 11th, 1922, and after flying over the island for some time it disappeared across the sea to the southward. During the rest of December and the first half of January, 1923, this bird paid almost daily visits to the island. These visits occurred in the mornings, when it flew backwards and forwards for some time before disappearing again; only on a few occasions was it seen to land, and then but for a few minutes. On February 2nd two were seen, and from that date until we left, a single bird visited us at irregular intervals.

During the 1923-4 seasons it was not until January 8th, 1924, that the Tropic-Bird was seen; on that day two were flying about. They repeated their visit the next day, and were then absent for about a month. Two Tropic-Birds reappeared on February 5th, and thence until May, one or two birds appeared at intervals of about one to three weeks. The last occasion on which a Tropic-Bird was seen was on April 22nd, 1924. On several occasions during these visits, especially during the later ones made in April, the bird hovered just above the grass, as if to land, but it always flew off again without doing so. When it came near the ground it was generally chased by the Noddy Terns nesting in the vicinity.

(16) BALD-COOT, or SWAMP-HEN (*Porphyrio melanotus*).

On the evening of December 22nd, 1922, a Bald-Coot was seen. The bird lived in the vicinity of our living quarters for about two weeks when it suddenly disappeared on January 2nd. While on the island it became tamer, and with the Land-Rails came up to the door for crumbs, etc. It also drank freely of the fresh water put out for the Rails. On January 3rd this bird was nowhere to be seen, but on January 17th the same, or a similar bird, was seen among the grass between the hut and the beach. Not until February 9th was it seen again, on this occasion for the last time.

(17) ORIENTAL CUCKOO (*Cuculus optatus*).

During the 1922-3 season an Oriental Cuckoo was first seen on January 11th, 1923. For several days it remained on the higher parts of the island, flying from place to place in the vicinity of the huts. It disappeared after a few days, and was not seen again.

On January 20th, 1924, twelve months later, an Oriental Cuckoo appeared on Willis Island. On this occasion it remained for two weeks, until February 2nd, after which it was not noticed again.

(18) TREE MARTIN (*Hylochelidon nigricans*).

On the evening of January 12th, 1923, during some heavy rain a Tree Martin, attracted by the light, flew into our living quarters. It flew off on being liberated and was not seen about the island again.

(19) BLACK-FACED CUCKOO-SHRIKE (*Graucalus novæ-hollandiæ*).

On the evening of March 31st, 1923, a Cuckoo-Shrike was observed on a stay of a mast. After resting for half an hour or so, it flew off, and was not seen again.

(20) NATIVE COMPANION (*Megalornis rubicunda*).

On the morning of April 11th, 1923, I observed at a distance of about 100 yards a Native Companion standing on the beach at the northern end of the island. On being approached it rose and flew along the beach and alighted farther down the island. It flew off again on being approached, and was lost to view.

(19) DOLLAR-BIRD (*Eurystomus orientalis*).

On March 4th, 1924, my attention was drawn to a Dollar-Bird, owing to the number of Noddy Terns which chased it whenever it left its perch on the stays of the mast. It remained on the island during that and the following day, perched for the greater part of the time on the wire stays, while every now and again, uttering a short harsh cry, it darted down among the grass after a moth, or other insect, only to be chased back by the Noddy Terns that were nesting in the vicinity. After March 5th it was not seen again.

(22) WELCOME SWALLOW (*Hirundo neoxena*).

This small bird was first observed on March 4th, 1924. It spent the afternoon flying about the island just above the grass, and darted here and there as if catching insects. It was seen only in flight. It remained about the island on March 5th, but was not seen later.

(23) WHITE CRANE (?).

During some heavy rain on the afternoon of April 5th, 1924, I noticed five large white birds flying to the east of the island. Next morning I saw one of them on the beach. In shape and size it resembled a Native Companion, but its plumage was white. It had a reddish bill and dark-coloured legs. The neck and legs were long, and when in flight, the legs were stretched out beyond the tail. When approached it flew to the opposite beach, where it remained for a couple of hours and then disappeared.*

NOTE.—Through the courtesy of the Curator, Mr. J. A. Kershaw, I had access to the collections at the National Museum, and was thus enabled to confirm the identification of the species seen at Willis Island.—J.H.

---

*There is no species of Crane which would fit Mr. Hogan's description, and the occurrence of a White Crane in the Australian region is very improbable. The birds seen were probably White Egrets (*Egretta alba*), but this species is a good deal smaller than the Native Companion and its bill is yellow not reddish.—Editor.

Early Breeding of the Top-knot Pigeon
(*Lopholaimus antarcticus*)

By J. F. H. GOGERLEY, R.A.O.U., Wallis Lake, N.S.W.

Not for many years has there been such abundance of wild fruit and berries in the brushes around Wallis Lake as there has been during the present year. All the fruit-eating birds and Pigeons have gathered to the feast, and Top-knot Pigeons are present in thousands. Their numbers prompt one to enquire where they come from, and how the species is maintained, in view of the fact that they lay one egg only, and are rarely found breeding.

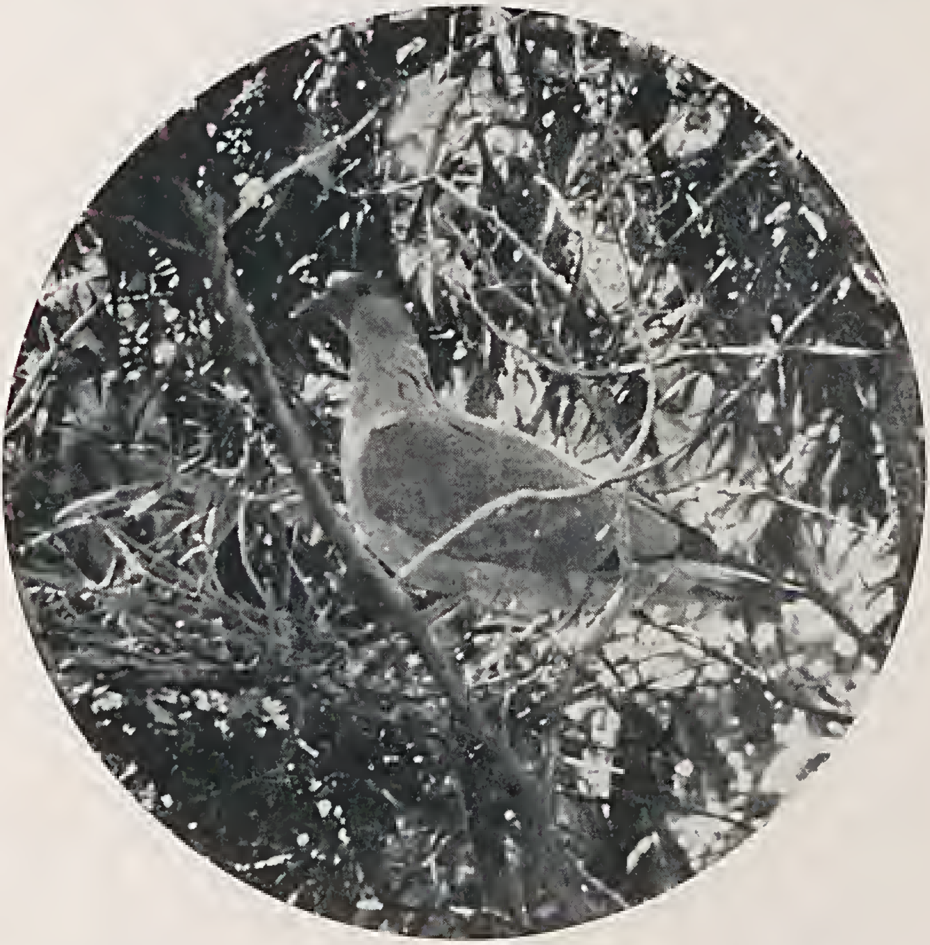
A tree crowded thickly with feeding Pigeons is a wonderful and beautiful sight. The large slate-coloured birds clamber on top of one another until suddenly they take fright and flash away with a sound like a gale of wind. Unfortunately a great deal of slaughter of these Pigeons goes on in spite of close seasons and the proclamation of sanctuaries.

The Top-knots had been around "Ellerslie" about a month when I was surprised to find that they were breeding. This was in June, although I had not previously known them to breed before October. The first nest, found on June 10th, was built in a paper-bark tree, thirty feet from the ground, and over a track. We flushed the bird, and found beneath the tree the shell of an egg from which a young bird had hatched. The nest was found to contain a young bird about one week old. His quills were just bursting, and his head was bald.

We had not a camera with us, so decided to return the following day, and commence a series of photographs showing the various stages of the nestling's growth. Circumstances were against us, however, as for nearly three weeks rain fell almost unceasingly. At the end of the third week I found the young bird still in the nest, but well grown. On the first fine day we undertook to photograph the chick, but he had grown so strong that we were afraid he would fly if an attempt were made from the nesting tree. After experimenting from another tree about twenty feet away, however, we were forced to take the risk, and my son ascended carefully with the camera and placed it six feet from the nest. While the camera was being focussed the young bird moved away to the edge of the nest. He did not move further and a picture was obtained.

The nestling was fully feathered, and his top-knot was just appearing. His legs and bill were lead-coloured, and the irides brown. He was about a month old, and left the nest a few days after the photograph was taken. But for the weather it would have been possible to picture the growth of this and several other young birds in the vicinity.

A nest containing an egg was found later at a height of 83 feet in a brush box tree. This was a very bulky structure, and



Young Top-knot Pigeon (*Lopholaimus antarcticus*) near the nest.
Photo. by Fred. Gogerley

NATIONAL MUSEUM MELBOURNE

the egg was smaller than is usually the case. On inspection the nest was found to be too much shadowed to make a satisfactory picture.

Another nest was found 40 feet from the ground in a lilli-pilli tree. Egg-shell was found beneath the tree, and the nest was consequently expected to contain a young bird. We were surprised, therefore, to find that the nest contained an egg. Apparently the birds had laid a second egg after the first young bird had been reared or possibly some other pair of birds had taken possession of the nest. This nest was also a bulky structure, and its appearance may be judged by reference to the photograph (see Plate 49).

A little later I noticed an egg-shell beneath a large forest oak. Investigation revealed the tail of a Wonga Pigeon (*Leucosarcia melanoleuca*) projecting from a bunch of oak leaves and twigs. We concluded that the nest contained a young Wonga, and that the shell on the ground was the remains of the egg from which it had hatched. However, my son climbed up with the aid of a rope, and found that the nest contained two eggs of the Wonga Pigeon. I then examined the egg-shell on the ground more closely, and found that it had been part of a Top-knot's egg. The Wonga's eggs were much incubated, and it was apparent that the bird had taken possession of a Top-knot's nest after the young Top-knot had left.

The Wonga sat very closely, and had to be driven away before the eggs could be seen. The nest was in such a position that it was impossible to obtain a picture. I have no previous record of the Wonga Pigeon breeding in June; the usual breeding season extending from October to January.

Another nest of the Top-knot was discovered low down in a parasitic fig tree. This nest contained an egg almost double the size of that in the brush box nest. Probably the small egg was laid by a young bird.

Most observers have recorded the Top-knot as building a frail platform of twigs in an extremely high tree. My experience has been different. In many cases, I have been able to see into the nests by standing in the saddle when on horse-back. Over ninety per cent. of the nests observed during the last three months have been built between eight and forty feet from the ground. Almost all the nests I have seen have been bulky, a fact which is demonstrated by the photographs obtained.

The Pigeons are fairly trustful while nesting, and are difficult to flush. By the exercise of a little patience we would have been able to photograph the adult birds at the nest had it not been that the weather made this impossible. The birds feed from sunrise until about 11 a.m., and from about 2 p.m. till an hour before sunset.

The Top-knot Pigeon makes a peculiar note, or rather noise, between a snort and a sniff. While in the nest the young utter a whining reedy call.

Birds of the Wairarapa Plains

By ROBT. H. D. STIDOLPH, R.A.O.U., Wellington, N.Z.

These notes are supplementary to those published in *Emu*, Vol. XXIII., pages 20-27, to which paper I would refer readers for a description and map of the country under review. I left the district in June, 1924, and in consequence most of my notes terminated with my departure. Again I have to gratefully acknowledge to Mr. A. S. Wilkinson, R.A.O.U., my indebtedness for interesting notes and much help. Since writing my last paper I can add four more species to the birds of the district, namely: Tomtit (*Myiomoira toitoi*), Black Fantail (*Rhipidura fuliginosa*) and Paradise Duck (*Casarca variegata*), and the introduced Brown Quail (*Synoicus australis*). The latter was noted by Mr. Wilkinson on two occasions.

Grey Warbler (*Gerygone igata*).—On the 27th January, 1924, a pair of these birds was seen feeding a young Shining Cuckoo (*Lamprococcyx lucidus*). The cuckoo was fed mainly on a small yellowish-brown caterpillar common amongst manuka (*Leptospermum*). The Warbler is one of the few birds that trills its cheery notes throughout the year. During a week-end visit to the Wairarapa, on the 26th October last, Mr. Wilkinson located a Warbler's nest in a *Leptospermum scoparium* (manuka). It was placed 10 feet from the ground, and was secured on the top, sides and bottom with sprays of manuka. The nest was composed mostly of moss, dry rootlets and stems, and was lined with white feathers. Its most conspicuous feature was a porch (built practically entirely of dry rootlets), which protruded over the entrance hole for ⅜ in. The nest measured as follows:—Length, 4¾ in.; width, 3½ in.; diameter of entrance hole, 1¼ in. The nest contained young. This pair of Warblers was particularly confident. We soon had erected a stage, and from this took the accompanying photograph at a distance of only 2 ft. 8 in. from the bird. Mr. Wilkinson has found this species to be very abundant in the 1924 season.

North Island Tomtit (*Myiomoira toitoi*).—A rare visitor. On the 4th November, 1923, Mr. Wilkinson saw a male bird, and on the 20th February and the 16th March of the following year I observed a male on each occasion. I have no record of this bird breeding in the district.

Black Fantail (*Rhipidura fuliginosa*).—A rare visitor. About three years ago a specimen of this bird was killed by a cat, in a suburb of Masterton. In the early part of 1924 I saw another Black Fantail in the district.

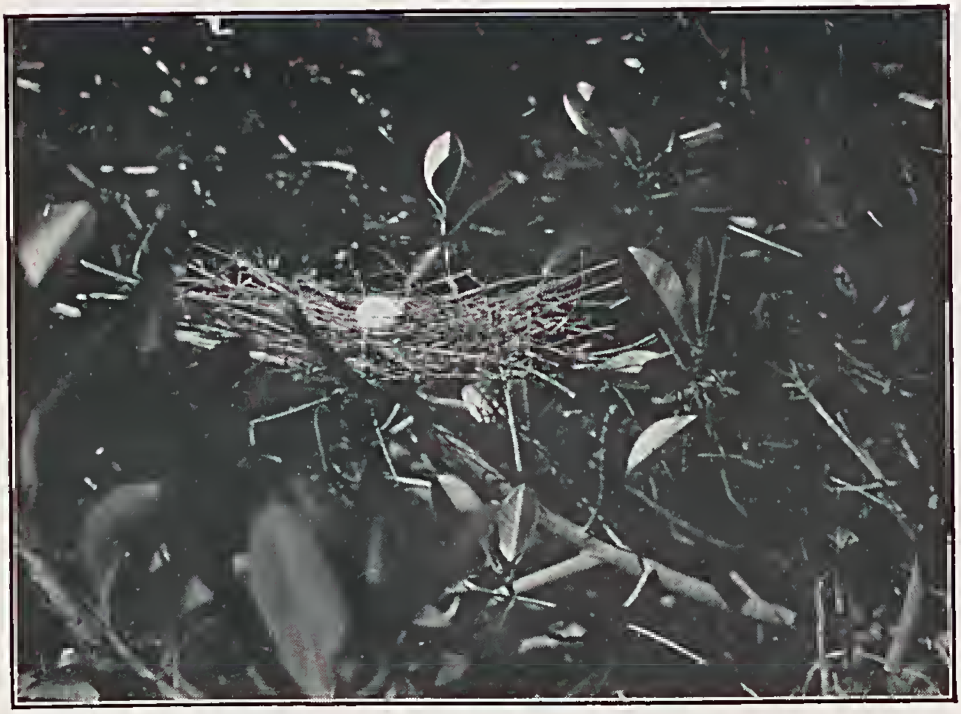
Grey-backed Silver-eye (*Zosterops lateralis*).—I have noted nests in a tawa (*Beilschmiedia tawa*), seven feet from ground, and in a young totara (*Podocarpus totara*) on the end of a branch, five feet from ground. The latter nest was built almost entirely of wool, finished off with a little moss on the rim. I have noted it feeding on the small black seeds of the muhlenbeckia.

Tui (*Prosthemadera novæ-seelandiae*).—On the 17th June, 1923, I visited a twenty-acre patch of hill-side brush, three miles from Masterton. To my great surprise, it contained about twenty-five Tuis—some were playing pranks in the air, others were singing melodiously, more were feasting on the fleshy perianth of the muhlenbeckia, and others again were flying impetuously from bush to bush. There were six or eight singing at one time. Their notes varied greatly. One bird specialised in croaks, one gave a call somewhat like that of a Kingfisher, another gave them as if it could not utter them quickly

Grey Warbler (*Gerygone igata*) feeding young.
Photo. by R. H. D. Stidolph, R.A.O.U.

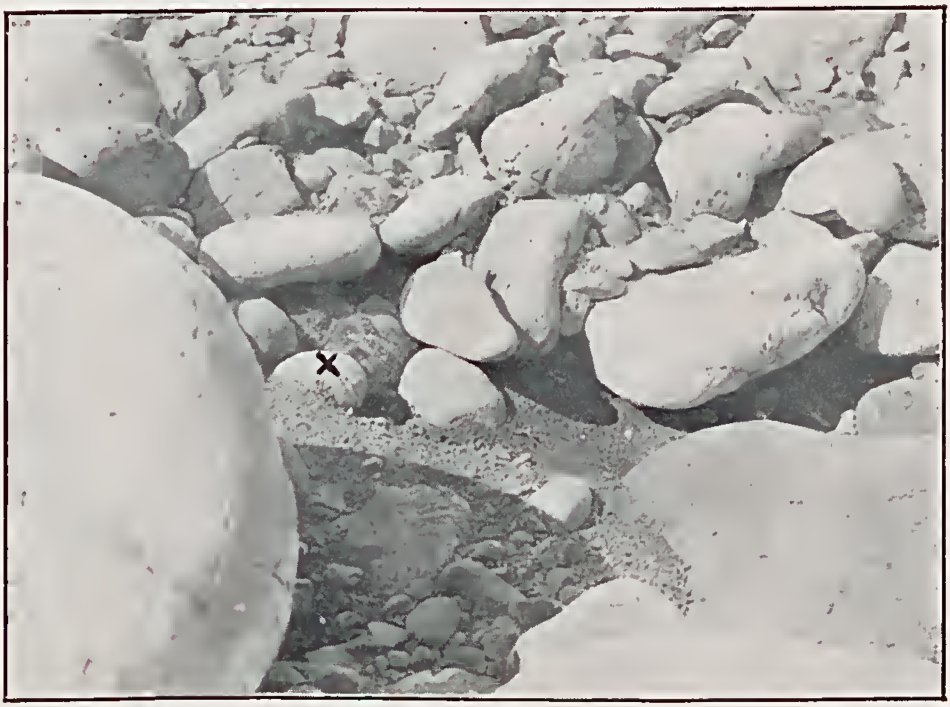
NATIONAL MUSEUM MELBOURNE

NATIONAL [illegible] BY [illegible]



Nest and egg of Top-knot Pigeon (*Lopholaimus antarcticus*) *in situ.* (See page 277.)

Photo. by Fred Gogerley



Young Double-banded Dotterel (*Charadrius bicinctus*) hiding amongst stones.

Photo. by R. H. D. Stidolph, R.A.O.U.

enough, the notes of yet another resembled closely those of the Bellbird. One bird invariably ended his performance with a "tut-tut." I approached very close to a singing bird. In the height of its concert, another Tui alighted on the branch only one foot from the singing bird, and facing him, remained quite motionless for fully four minutes, while he poured forth his melodies. The performer would raise the feathers on his head and, before giving his usual notes, would utter a soft mixture of warbles, scarcely audible. It would end up with a vehement "ow, ow," at the same time giving a slight toss of the head. I have seen a Tui chase a Starling and a Kingfisher from a tree on which it was perched. In January I have observed Tuis feeding on the berries of the totara. This bird is certainly increasing in numbers in the Wairarapa.

Sacred Kingfisher (*Halcyon sanctus*).—On the 14th October, 1923, we noted a pair attempting to make a nesting-hole in a dead willow trunk. Five holes were attempted in the trunk, but one especially, received the bulk of attention. The birds would take up a position ten or fifteen feet away and fly straight to the hole, and a decided "whack" would be heard when the bill struck the wood. Occasionally the bird would stop at the hole and peck away pieces of wood. When a bird struck the tree, it would utter "chop-chop," and when on its return to a bough, "urp-urp-urp-urp-urp" rather quickly. As soon as it settled again, a faint chirp would be heard, followed almost immediately by a note resembling "ewah, ewah." These operations and performances continued for some time, both birds working and generally alternately. Eventually one flew away, when the other, after one more dig at the hole, flew to a prominent position and uttered "querk, querk, querk," and disappeared. After an absence of about five minutes, one bird returned and called "keow, keow, keow," which immediately brought its mate home. Then commencing with the "ewah" note, boring operations started again. However, a subsequent visit showed that the birds had deserted the proposed nesting-site. At the time I left the district, this bird was increasing in numbers.

Quail Hawk (*Nesierax novæ-seelandiae*).—A specimen shot in the early part of December, 1922, near Masterton, gave the following measurements:—Length, 19.25 in.; bill, 1 in.; wing from flexure, 10.75 in.; tarsus, 2.25 in. Ceres and legs, lemon. Sex unknown, probably a female. On the 23rd and 24th June, 1924, two more birds were obtained near Masterton. They measured as follows:—(a) length, 15 in.; bill, 1 in.; wing from flexure, 9.25 in.; tarsus, 2.25 in. Ceres and legs, light sea-green. Eye, dark brown. Immature (?); (b) length, 17 in.; bill, .875 in.; wing from flexure, 9.5 in.; tarsus, 2.25 in. Ceres and legs, lemon. Eye, dark brown. The taxidermist who skinned this bird said he believed it to be a female. I am not at all satisfied that two species of *Nesierax* inhabit New Zealand. I have therefore placed the three above-mentioned specimens under *Nesierax novæ-seelandiae*. Though the two latter would probably be regarded as examples of the Bush Hawk (*N. pottsi* = *australis*) by some ornithologists.

Banded Land-Rail (*Hypotaenidia philippensis*).—I noted this bird on one occasion. According to reliable observers, it was fairly numerous in the district some years ago. It is certainly rare now.

Brown Bittern (*Botaurus poiciloptilus*). — Resident. I can state definitely that this bird breeds in the district, as on the 15th November, 1923, a person rang up and told me a strange bird was seen in a suburb of Masterton. Investigation proved it to be a young Bittern, undoubtedly reared in a nearby swamp.

Double-banded Dotterel (*Charadrius bicinctus*).—These birds frequent ploughed ground and stony paddocks as well as the river-beds. On 30th September, 1923, Mr. Wilkinson found a nest on the Waingawa river-bed. It contained two eggs, and on the 7th October contained three, the usual clutch. The eggs were merely placed in a slight depression amid stones. On the same day, we also noted a Dotterel chick. On the 13th October, we discovered another young Dotterel hiding from us amongst the stones. The accompanying photograph, taken exactly as we found the bird, clearly shows its protective coloration and instinctive habits.

White-headed Stilt (*Himantopus leucocephalus*).—Contrary to the experience of Sir Walter Buller, on the 7th October, 1923, in company with Mr. Wilkinson, I saw four Stilts wading in deep water, their long legs being practically entirely submerged, and the water touching their breasts. Of the four birds, one lacked the white collar on the hind neck, but had just a tinge of white in its place.

Southern Black-backed Gull (*Larus dominicanus*). — These birds arrived at Waingawa somewhat earlier than is usual in 1923 (the following autumn and winter season was a boisterous one). Although really a non-breeding autumn and winter visitor, odd birds, mostly immature, may be seen in spring and summer months.

Paradise Duck (*Casarca variegata*).—Rare. Although continually about in the district, I did not note this species of duck in the Wairarapa before the 14th October, 1923, when with Mr. Wilkinson I saw a male bird on the Ruamahunga river-bed. On the 20th November, we were fortunate to come across in the same locality a female with four ducklings. To my knowledge this bird is rare in this district, but is fairly plentiful in some neighbouring localities. It may be a regular breeder. Other reliable observers reported several of these birds in the same locality as those noted above.

I have been informed that the Blue-winged Shoveller (*Spatula rhynchotis*) has been seen in the district. It is very likely it does occur, but must be rare. I have not noted it, except around Wairarapa Lake, where it is fairly plentiful.

Rangitumau Hill, a few miles north of Masterton, was in the early days a favourite haunt, besides other species, of the Blue-wattled Crow (*Callaeas wilsoni*), Piopio (*Turnagra tanagra*), and Huia (*Neomorpha acutirostris*). In the swamps around Masterton the Fern-Bird (*Bowdleria punctata*) was abundant, and throughout the district roamed the Weka (*Gallirallus australis*)—now these birds are but a memory to the "older hands," gone, I am afraid, never to return.

Some Rare Birds in Tasmania

By H. STUART DOVE, F.Z.S., West Devonport, Tasmania.

In Mr. Edwin Ashby's interesting paper on "Extinct or Rare Australian Birds," read at the Conference in Hobart last year, he mentions (*Emu*, XXIII., p. 182), the Orange-breasted Grass Parrot (*Neophema chrysogastra*), as having practically disappeared from the visited portions of South Australia between 1885 and 1918, in which year Dr. Morgan saw a number in the South-east, after which they again disappeared.

In *Emu*, IX., p. 141, Mr. F. M. Littler, of Launceston, records a trip which he made to North Island, off the north-eastern coast of Tasmania, and within sight of land. He describes the island as about 300 acres in extent, consisting principally of rocks and tussock-grass, with patches of sown grass. After describing various species seen during his visit, including Dusky Fantails (*Rhipidura diemenensis*) and Flame-breasted Robins (*Petroica phœnicea*), he says: "A flock of six Orange-bellied Grass Parrakeets (*Neophema chrysogastra*) paid a short visit; they were seen to arrive from the seaward side, and after a short rest departed for Tasmania." This was in 1910, exact date not given, but about the end of September.

My own notes record a small party of twelve individuals of this Grass Parrot in a weedy garden beside Chinaman's Creek, which adjoins Devonport town on the south; they were feeding eagerly on the seeds in the grass and weed tangle, and had probably only recently arrived. This was in the afternoon of 5th August, 1918, the very year in which Dr. Morgan recorded their reappearance in South Australia; my note says that the wind was south-east, light, and sky cloudy, at the time. These were the first of the species I had seen in Devonport, although the previous summer, when driving with a friend through the Hasford district, a few miles to the eastward, between the Mersey and Port Sorell, and not far from the latter, I noticed several feeding in a paddock of short grass, and got out of the vehicle to identify them.

Ground-Parrot (*Pezoporus wallicus*).—When I first settled in the bush near Table Cape, North-west Tasmania, more than thirty years ago, I frequently flushed these birds when riding across a plain which lay between my small homestead and the nearest township. This plain was dry and sandy in summer, very swampy in winter, and covered with large clumps of button grass (*Gymnoschoenus sphærocephalus*), the round seed-heads of which are elevated on long stems; the Parrots would rise from one of these clumps as the horse approached, fly perhaps 30 or 40 yards, and plump down into another clump. They usually flushed singly; I never saw them in parties like the Grass Parrot just described, and as it was always towards the end of summer (February and March) when I saw them, they probably lived on the seeds of the button grass. The Parrot family seems partial to seeds of this kind; another great clump which grew plentifully in the district and bore its seed on a tall spike, is locally known as cutting-grass, and botanically as *Gahnia psittacorum* or Parrot Gahnia.

The plain to which the Ground-Parrots resorted is near the township, and is now largely built upon; quite possibly they may still be found on similar plains which have not been interfered with. I used to regard them as migrants, as they seemed to clear right away before winter. The flight certainly appears feeble, but we cannot judge a bird's migratory powers by its performance on land. The Bronze Cuckoos seem to have very small flying power, yet the Shining Bronze (*Lamprococcyx lucidus*) makes the journey regularly from tropical Australia to New Zealand. Sir Walter Buller says he kept a register at Wellington for ten years of its periodical arrival, and noted its regular occurrence between the 5th and 10th October. Our little Pipit too (*Anthus australis*), which seems so very averse from a flight of any length when here, clears off each autumn on some mysterious journey, perhaps to Central or North-west Australia.

The Black *Malurus*.—When walking along the bank of the Mersey to Latrobe on the 28th January just past, I noted a male *Malurus longicaudus* of the black variety mentioned by Miss J. A. Fletcher in her paper read at the 1923 Conference. The wings appeared black instead of grey, and the parts of the plumage which usually look blue-black in a good light, seemed in this case jet black. The bird had a beakful of small white grubs, so was still feeding young, although so late in the season; he flew across a paddock of long grass to a belt of scrub on the further side, and as I was on the way to attend a public function I did not follow. An occasional male of this melanistic variety has been noted during my residence here, and in widely-separated parts of the district, so that there are evidently several about. It is possible that, if a male of the ordinary colouring should survive a certain number of years, his plumage would assume these darker tints as a final phase.

Birds of a New South Wales Garden

By H. V. EDWARDS, R.A.O.U., "Old Rectory," Bega, N.S.W.

If they are treated as welcome visitors, or at any rate not seriously interfered with or scared away, the number of different birds which constantly appear in gardens and other enclosed spaces around houses in the country is often astonishing. In my case the areas enclosed amount to about two acres—about two-thirds being pasture land studded with native and ornamental trees—pines, laurels, elms, and oaks chiefly, and the remainder, flower and vegetable garden. The holding is situated on the far South Coast of New South Wales—quite in the open and close to a large town. The climate on the whole is temperate, although at times the extremes of heat and cold are considerable. Silver-eyes are frequent visitors, arriving in numbers about January, when fruit is ripening, but a few of these birds are usually to be seen during the winter. These birds do good work in ridding fruit trees of scale insects and other harmful kinds. Silver-eyes, however, take their toll of soft, ripe fruits, but this is partly to slake their thirst, and no one should grudge a useful insectivorous bird its due reward. Mulberries, grapes, peaches and apricots when dead ripe are especial favourites of the little yellowish-green birds. The delicate cup-nest, with its two pretty pale-blue eggs, is often swung from the twig of a fruit tree, and usually is not discovered until the leaves fall. It is as a rule well hidden, slender in build, and made of inconspicuous material.

A shallow pan of water put out daily for the garden birds will assist in checking the depredations of those which occasionally attack ripe fruits, as water will quench their thirst better than the sweet juices. With respect to the Starling and Oriole, however, it is different. These birds include fruits and berries in their natural food supply. As evidence that many birds attack fruit at times merely to quench their thirst, I may cite the example of a Tree-Creeper—a purely insectivorous bird—which I observed pecking at a ripe apple left by chance on top of a stump in thick scrub. The day was intensely hot, and the bird was endeavouring to slake its thirst with juice sucked from the apple.

Both Sparrow and Starling not only eat soft fruits, but assemble in the trees in large flocks, and incidentally knock down and waste far more than they eat—mulberries, for instance, often lie like hail beneath the trees after an invasion by these introduced pests. The Starling, however, being a useful destroyer of bot-flies and their larvae, and of other harmful insects, to some extent atones for its sins; but the useless and impertinent House Sparrow has no such good points. The Olive-backed Oriole, with loud, rippling call-note, arrives about November. It is a useful insectivorous bird on the whole, but during droughts, when native fruits and berries are scarce, may do a little damage in orchards and gardens. Among its natural food-supplies are the native currant, lilipili berry—a fine purple when dead ripe—and the native orange (so called), which has large red seeds embedded in capsules of rich golden yellow.

The Oriole is particularly fond of the purple-black berries of the garden (not true, or "victor") laurel, but—like the Blue Jay (Black-faced Cuckoo-Shrike)—is partial also to ripe olives, and will attack these if the garden includes any of the sombre-foliaged trees in bearing. White-browed Wood-Swallows appear some summers in immense flocks, playing havoc among the greenish-brown chafer beetles which now annually defoliate the finest gum-trees in many parts of Australia. Domestic fowls also feed on these beetles, which, it is said, impart an unpleasant flavour to their eggs. In due season these Wood-Swallows build their careless stick nests in trees, shrubs, stump hollows, etc., rear their young, and then migrate elsewhere. One enterprising and exceptionally trustful couple built their nest in a camelia shrub within three or four yards of the writer's front door step. These slate-grey birds and also their first cousins, the Dusky Wood-Swallows, which are stationary in habit, do splendid service in checking the increase of chafer beetles and of a hairy caterpillar which infests grape vines and cultivated creepers. From this loathsome grub springs a purple moth with rounded spots of cream colour, and on this, too, the Wood-Swallows prey. Whistlers, Rufous and Golden-breasted, haunt my garden, and in early spring trill their sweet love-song, which is so different from the ordinary call-notes. They nest occasionally in a mulberry tree. Scarlet and Flame Robins are occasional visitors, appearing as a rule in winter, when the deciduous trees are bare of leaf, and there is little colour to vie with that of their gay vests. Other occasional winter visitors are Satin Bower-Birds in small companies—yellowish green females and young males. The black "Satin Bird"—*i.e.*, a male of mature age, and in full glory of glossy purple-black raiment—has not so far condescended to pay me a visit, but a pair of Cat-birds (also of the Bower-bird family) called once, and fed upon privet berries. Bell-Magpies descend at times from the ranges, but as a rule only in severe winters and seasons of drought. Their quest is mainly privet and laurel berries, although insects also are included in their diet. I have counted over twenty in a flock, busily searching for insects in long grass covering a vacant allotment on the outskirts of a populous town. The Delicate Owl, or Australian Barn Owl, sometimes sleeps by day in the densest pines, but the Boobook Owl is far more common, and its sepulchral call of "morepork, morepork," is one of the familiar night sounds. Some people still hold to the theory that it is the Frogmouth, not this Owl, which is responsible for the familiar cry, but there is no longer any doubt about the matter By way of proof, I flashed an electric torch full on some night-bird perched on a post, and emitting the call "morepork, morepork," with constant reiteration. It was a Boobook Owl. This Owl is credited with a liking for small defenceless birds, but although it may seize these occasionally, it is nevertheless an active destroyer of nocturnal insects, and a good "mouser." I have occasionally heard the weird call of a Nightjar near the house, but have never seen the bird, though the White-throated variety is found in the open forests, and often breeds on the saddles of desolate ranges—the single egg, laid on the bare ground, sometimes becoming the perquisite of Ravens. Butcher-birds are fairly common, and the clear bell-like call—in which there is a somewhat sinister note, as though the bird were meditating a descent upon some smaller member of its race—often rings out from the shrubbery. The ubiquitous Magpie (Crow-Shrike) is quite at home, and frequently nests in the pines; but the Grey Bell-Magpie is a much rarer visitor, and the Cobbler's-awl Bird (Slender-billed Honeyeater or Spinebill), bluish grey with deep chestnut breast, I have seen once only, clinging as it sucked the nectar to the scarlet flowers of a Japonica which breaks into blossom before the leaves come.

Finches are represented by the gay "Diamond Sparrow" (Spotted-sided Finch), with broad patch of flaming scarlet at the tail, and the more soberly attired Red-head (Red-browed Finch), olive-green in general colouring. Both hunt assiduously for weed seeds. To these may be added the introduced Gold-Finch, inordinately fond of the rich brown sunflower seeds, and so matching this flower and its leaves in colouring that, when clinging to the plant in feeding, it is not easily distinguished.

Tree-Creepers and Tree-Runners (the latter of the Orange-winged variety), birds of the open forest mainly, sometimes work over moss-covered fences and also pine trunks. After a deluge of rain, I found a Tree-Runner which had been drowned in the downpour lying under a tree, while a "Willy Wagtail," with wings so soaked as to be incapable of flight, took refuge under a verandah. The fall in this instance was a record one for New South Wales, and continued steadily for three days and nights. The "Willy Wagtail" (Black and White Fantail) and the White-shafted Fantail ("Cranky Fan") sometimes build their beautiful cup-nests shrouded in grey spider web, in small trees near the house, but another bird of the Fantail group, the Scissors-grinder, though it is an occasional visitor, never does so, preferring a more secluded nesting site.

The demure and, alas, too trustful Grey Thrush, with soft melancholy call-note, comes in winter, and often falls a prey to marauding cats. So, too, does the Peaceful Dove, much given to seeking seeds in long grass where—not being a particularly alert bird, it is easily stalked and captured by the cunning grimalkin. These pretty little Doves build their slight stick nests on horizontal pine boughs, and masses of pine needles caught in forks. Parrots, Rosellas and Crimson Parrots chiefly, are not infrequent visitors, the latter feeding on the succulent buds of a port-wine stained magnolia. The common green parrots, too, sometimes shriek from the top of a tall gum, as they suck nectar from the white aromatic blossoms. Dollar-Birds, with harsh creaking notes and ornate plumage of purplish and pale blue and brown, circle around in chase of aerial insects, while the Caterpillar-eaters, pied male and russet-brown female, often flutter over the tall grass, darting down at intervals to secure some succulent dainty. The "Ground Lark" (Australian Pipit), a bird of wide distribution, sometimes builds its cosy grass nest, lined with soft feathers, under an overhanging tussock, while, in good seasons, odd couples of Stubble Quail are not infrequent.

Blue Wrens (Superb Warblers) are among the common garden birds. I have found the cosy nest in a spiræa bush, Cuckoos of two different species had added—one a bronze, the other a red-spotted egg—to the Blue Wrens' clutch, making five eggs in all. Sometimes, but rarely, the Mock Regent Bird (Warty-faced or Regent Honeyeater), attired in rich yellow brown and black, comes up from the southern coastal scrubs, remains a few weeks, and then disappears. It is one of our "Beauty Birds." The Welcome or House Swallow builds its mud nest in outhouses, and would build in verandah corners if not interfered with, while the "Peewit" (Magpie-Lark) is a frequent and trustful visitor. Diamond Birds—spotted and striped—bespangled with red, yellow, white, and black, often collect nesting material, such as pliant bark and soft feathers, close to the house, while of the larger Cuckoos, the Pallid and Fantail varieties are not uncommon. The "Gill-bird" (Wattled Honeyeater), Friar Bird, and the (so called) "Morepork" (Frogmouth) complete my list of the larger birds observed about garden and grounds, while to the smaller species may be added Tit-Warblers of two varieties, including the Yellow-tailed or "Tomtit," both species of which sometimes nest in the pines. Though not "garden birds," a flock of Straw-necked Ibises on one occasion searched assiduously for caterpillars in a paddock adjoining the enclosure haunted by the birds previously mentioned.

Notes on Two Pigeons of the Genus Globicera

By J. R. KINGHORN, C.M.Z.S., Zoologist, Australian Museum,

(*Contributed from the Australian Museum.*)

Though the occurrence of *two* species of *Globicera* in Australia is usually doubted, there seems to be little reason why *one* of them should not inhabit the dense tropical forests of Cape York Peninsula. As I have received numerous enquiries from time to time in respect to the distribution and recording of specimens, I decided that a compilation of my various notes, relating to the history of each species, would form a short paper which might be of some value to those ornithologists who may care to go further into the matter, and so place the questions beyond doubt.

THE GREY-HEADED PIGEON.

The first specimen of the Grey-headed Pigeon (*Globicera pacifica*) came from the Friendly Islands, and was described by Latham in his *Synopsis of Birds*, Vol. II., p. 633, 1783, under the name of *Ferruginous-vented Pigeon.* Six years later, Gmelin described the same bird in his *Systema Naturæ*, Vol. I., p. 777, 1789, placing it in the genus *Columba,* under the name of *Columba pacifica.* Bonnaterre, in *Encycl. Meth.* I., p. 241, 1791, writing upon the bird under the same name, gave a description, a reference to Latham's work, and the locality—Friendly Islands.

For some years following its discovery, descriptions were so meagre that authors, finding Pigeons in different islands of the Pacific, were unable to identify them, and in recording them were compelled to attach new names, thereby unconsciously adding to the ever-increasing list of synonymous names. For example, Quoy and Gaimard, recording one Pigeon from Rawak Island, collected during the voyage of the "Uranie," described a specimen as *Columba aenea* in the Zoological part of the work dealing with those collections; *Voy. Uranie, Zool.* 1824, p. 119, pl. 29. Then in 1827, Wagler described some specimens in his *Syst. Avium, Columbae*, sp. 15, under the name of *Columba aenea.* Eventually it was shown that only one specimen belonged to this species, and the other, or others, to *C. myristicivora.* On the same page he also gave a description of *C. pacifica.*

Later, in *Isis,* 1829, p. 738, Wagler described some Pigeons from Tongatabu under the name of *Columba globicera,* but it was proved that he had again placed birds of more than one species under one name.

Up to this time, no Pigeons belonging to this group had been taken from anywhere near Australia; but Macgillivray, writing in the *Voyage of the Rattlesnake,* I., p. 244, 1852, noted that, on Duchateau Island, off South-east New Guinea, this Pigeon, which he called *Carpophaga oceanica,* was in great numbers, and was much sought as a food delicacy. Its known range was extended further, when Pelzeln, in *Reis. Novara,* p. 106, 1865, described a specimen from Stewart Island, Solomon Group, as *Carpophaga frauenfeldi.* In 1854, Bonaparte, *Comp. Rend.* XXXIX., p. 1071, and in 1857 in *Conspectus Avium,* II., p. 30, correctly placed this species under the genus *Globicera,* as *Globicera pacifica,* Gmelin.

In 1878, Ramsay, when writing on the birds of New Guinea in *Proc. Linn. Soc. N.S.W.,* 1878, p. 292, discovered that the collection on which he was working contained several specimens of *Globicera pacifica* from Teste Island, South-east Cape, British New Guinea, and other neighbouring localities worked by Goldie, Broadbent and Blunden, thus extending the range nearer to Cape York. From about this time onwards, several authors were of the opinion that something definite in the way of comparative work should be done, and while they were evidently sure that many of the previously described forms were identical, they were equally certain that there were at least two distinct species under consideration. In the *Ibis,* 1878, p. 260, Layard recorded a bird from the northern parts of New Caledonia which he noted as being darker than the southern form. In the same publication for 1882, he stated that it was a rare visitor to the south, where it evidently found its way from the Loyalties; it being well known in the latter locality. Later he examined several birds, and concluded that there were at least two different varieties, if not species.

In the *Ibis,* 1900, Farquhar refers to *G. pacifica* occurring in large numbers in Malecola, stating that its loud booming could be heard at a considerable distance. He was there observing birds, but was collecting only small ones at the time, and he had much trouble in persuading the natives that he did not want the Pigeon. This they could not understand, as they considered it a special food delicacy. Later, Sharpe (*Ibis,* VI., p. 349, 1900) stated that Farquhar's bird was really much darker than the typical *G. pacifica,* and furthermore, that it had a slate grey head, neck and chest, so he named it *Globicera farquhari.* A second bird from Vanikoro, which had a lighter mantle of pearl grey, he thought should retain Bonaparte's name, *G. tarelli, Comp. Rend.,* XXXIX., p. 1072, 1854.

In reading the various accounts concerning *G. pacifica,* in the *Ibis,* it would appear that there was considerable doubt among authors as to whether it inhabited Raratonga; but Ogilvie-Grant, (*Ibis,* V., p. 592, 1905) stated that he received several specimens from that locality.

In the same work for 1907, Scott B. Wilson recorded the species from Raratonga, adding that the crops of the Pigeons were full of banyan seed. He suggested that they were likely to become extinct at an early date, as they were highly prized as a food, which fact, together with natural elements, was accounting for a rapid decrease in their numbers.

An Australian Record

As stated before, *Globicera pacifica* was found to occur in the south-east of New Guinea, which is not far from Cape York, and so in the natural course of events, ornithologists would be entitled to the opinion that it would not be long before such a bird would be found in the dense tropical forests of North Queensland.

It was in 1919 that Mathews in his *Birds of Australia,* VII., p. 414, pl. 366, 1919, recorded and figured a specimen from Mackay, Queensland, which appeared to be *Globicera pacifica.* He purchased it from a collector, but considered it to be an alien; the collector, however, assured him that it was shot near Mackay. As the collector had nothing to gain by inventing a locality, Mathews accepted his word. On examining the bird he found that it differed slightly from the typical form; one character being that it had a red cere, while *G. pacifica* had a black one. He straightway communicated with Dr. Witmer Stone, of the Philadelphia Academy of Sciences, suggesting that the bird might be identical with Cassin's type of *Carpophaga lepida,* a bird which was purchased in Europe, but labelled "North Australia." Stone, who was able to examine the type in question, commented that Cassin's bird had been correctly placed by Salvadori as a synonym of *G. rubricera,* Bonaparte. As Mathews' specimen was quite distinct from the latter species, and as it differed slightly from the typical *G. pacifica,* he made a new sub-species, and called it *Globicera pacifica queenslandica.*

There is a most interesting specimen in the Australian Museum Collection, from Funafuti, and it agrees absolutely with Ogilvie-Grant's description of *G. farquhari;* and, but for a black cere, with Mathews' *G. pacifica queenslandica.*

In view of the above, it is with great diffidence that I suggest that the colour of the cere may differ with the sex, season, or age, and, as it is evidently the only definite distinguishing character between the birds, examination of the types with a series of specimens, might prove them to be identical and the names to be synonymous.

The foregoing short history, together with the facts that Ramsay and Macgillivray each recorded several specimens from islands within easy reach of Australia, and that Mathews recorded one from the mainland (though this latter is often considered doubtful) leads me to conclude by saying that I see no reason why the bird should not be rediscovered in some of the tropical scrubs of Cape York, and that it is entitled to a place on our "Check List."

THE RED-KNOB PIGEON.

The discovery of the Red-knob Pigeon (*Globicera rubricera*) dates back to 1826, when Lesson, who received a specimen from New Ireland, thought it to be *Columba pinon,* of Quoy and Gaimard, and recorded it as such in *Voyage Coquille, Zool.* I., p. 342, 1826. Later Lesson's bird was found to differ generically from Quoy and Gaimard's specimen, and so Bonaparte described it as *Globicera rubricera* in *Comp. Rend. Acad. Sci. Paris,* XXXIX., p. 1073, 1854. The same year Cassin purchased a pigeon in Europe which bore a locality label "North Australia," and not having seen Bonaparte's description, described it as a new species under the name *Carpophaga lepida,* in the *Proc. Acad. Nat. Sci. Philadelphia,* p. 230, 1855 (Dec. 1854). Some time later Gray, *Cat. Birds Tropical Islands,* p. 41, 1859, recorded this name as being synonymous with *Globicera rubricera.* Many authors, including Wallace, Salvadori, Finsch, Tristram, and Sclater, writing in the *Ibis* from the year 1865 onwards, and in *Proc. Zool. Soc. London,* from 1877 onwards, received specimens from many of the islands of the Pacific, and the conclusions arrived at by Salvadori, as far as its distribution was concerned, were to the effect that it inhabited most of the islands of the Pacific between the Savage Islands and the East Papuan group.

Australian Record

It must be clearly understood that the only specimen of *Globicera rubricera* ever recorded from Australia was the one purchased in Europe by Cassin, and described as *Carpophaga lepida.* The label must have been rather indefinite, otherwise authors would not have queried the record, as Salvadori did in *Brit. Mus. Cat. Birds,* XXI., p. 179, 1893. With this exception no other specimen of the species has been collected nearer to Australia than the Bismarck Archipelago, which is a long way from our shores. Furthermore, unlike the previous species, it has not been found in New Guinea, though several well organised parties have collected there. As Cassin's bird undoubtedly bore the label "North Australia," I presume that there was a mistake. This might easily have occurred through the specimen having been inadvertently misplaced, eventually being found among some collections from North Australia. In support of this contention, I would like to say that such mistakes have occurred on the other side of the world, on more than one occasion, in the past, in respect to collections of reptiles and fishes from Pacific areas. In one instance several Australian lizards were wrongly recorded as being from South Africa.

In view of the above, I have good reason to doubt that Cassin's bird was found in Australia, and, under the circumstances, think that it would be a wise move on the part of the Check List Committee if they either leave *Globicera rubricera* off the list, or, at least, place it within the square brackets which are being allotted to doubtful records.

Birds Observed at Burketown, North Queensland

By A. E. CHURCH, F.R.G.S., R.A.O.U.

To the bird lover, Burketown presents a very depressing picture; built on the banks of the Albert River, about 40 miles from the Gulf of Carpentaria. Flat sandy plains stretch as far as the eye can see in every direction. The low fringe of mangroves that line the winding banks of the Albert give the only touch of colour to this apparently desolate country.

I journeyed here from Thursday Island on the "Kalatina" in November last year. This district is one that gives small scope for compiling a large list of birds, but it can at least offer one feature of interest. The migratory birds use these vast plains as camping grounds during their long and arduous flights to and from their northern homes.

On first acquaintance these vast plains appear to be entirely devoid of bird life. I have ridden many miles and not seen even a bush or tree that might offer a shelter to our feathered friends. I was perhaps unlucky in timing my arrival, for a long drought had left the sandy plains burnt and bare. Not a vestige of green broke the glare of the fierce sun on the parched ground.

It was not until December (after the first rain fell) that I had an opportunity of noting in my diary more than half a dozen specimens. Perhaps the commonest bird is the graceful Brolga, or Native Companion. These may be seen in fairly large flocks along the river bank. Hawks and Falcons also are common, and act in the useful capacity of scavengers around the few houses that form what was, I believe, once a prosperous town.

A small lagoon about six miles away proved my most fertile hunting-ground, and here I noted many of the birds on my list. Often I have crept on all fours for hundreds of yards in the vain hope of securing a photograph of a flock of Brolgas or White Ibises, but the absolute lack of cover (the lagoon could only boast a scant dozen shrubs and trees) must be my excuse for the absence of pictorial record with these notes.

An artesian bore with its attendant "drain" gave me an opportunity to observe some of the smaller birds; but, alas! I must admit that Burketown cannot be classed among the districts rich in bird life.

Rain at the end of December soon covered the bare plains with long waving grass, and almost immediately my note book was called into use. In January heavy rains caused a flood, and for many miles the flat, low-lying plains became a huge inland sea. It was then that I noticed several of the sea birds mentioned in my list.

Geopelia placida. Peaceful Dove.—I noted a pair of these flying among the mangroves on the banks of the river, but was unable to locate a nest, and concluded they had travelled farther inland.

Tribonyx ventralis. Black-tailed Native-hen.—Saw over a dozen of these birds among the mangroves. I could not approach them closely, but the white markings on the flank left no doubt in my mind as to their identity.

Gallinula tenebrosa. Black Moor-hen.—Noted three specimens among the mangroves.

Porphyrio melanotus. Eastern Swamp-hen.—I have one of these birds on my list. I was for some time uncertain, but, at last, secured a close view.

Fulica atra. Coot.—Several Coots nested towards the mouth of the river in a side creek heavily overgrown with mangroves.

Gelochelidon nilotica.—Gull-billed Tern.—After the flood, several of these graceful birds visited the "water-logged" plains and stayed for several days. They were very tame, and I was able to observe them from an old punt.

Sterna anæthetus. Bridled Tern.—Two of these visited the town, and their wonderful gliding filled me with admiration. Several days afterwards I saw what I took to be a specimen of *Sterna fuscata* (Sooty Tern), but owing to the distance, I was unable to gauge its measurements accurately.

Lobibyx miles.* Masked Plover.—Large flocks of these very fine birds were always to be seen, either on the marshy edges of the bore "drain," or on the sand banks of the river.

Pluvialis dominicus. Lesser Golden-Plover.—A large flock of these birds was noted by me immediately after the second rains (Dec. 16th). They stayed on the plains only two days, and then left, flying in a south-easterly direction. I was surprised at this as they appeared to be flying towards the Cloncurry district, and not down the eastern coast, as I had supposed they would.

Himantopus leucocephalus. White-headed Stilt.—A small party of six camped for over a week on the bore "drain"; their peculiar antics when feeding very much amused me.

Numenius cyanopus. Eastern Curlew.—I saw four of these while I was travelling up the river from the "Kalatina." I judged three of them to be males and one a female. I do not know if this is unusual, but supposed the approach of the mating season might be responsible for the reversal of the usual order.

Numenius phæopus. Whimbrel.—I saw one of these birds in company with the party of White-headed Stilts.

Actitis hypoleucus. Common Sandpiper.—One specimen only I observed on the lagoon after a very heavy "blow." It did not remain long, and I have seen no others since.

Crocethia alba. Sanderling.—Several of these were observed on the sand banks at the mouth of the river. The white bar on the wing formed the key to their identity.

Pisobia ruficollis. Red-necked Stint.—Many of these pretty birds frequented a bend of the river about 5 miles below the town. Their dashing flight was quite interesting, and I spent many hours following them along the bank. They left, however, after the flood, and I have seen only one since.

Erolia testacea. Curlew Sandpiper.—A large number were occupying the sandy beach when I landed from Thursday Island. I judged that they had recently travelled a long distance, as many of them appeared to be in a very exhausted condition. I had only this solitary chance of observing them, and I may easily be mistaken.

Calidris canutus. Knot.—Many small flocks visited the mud banks left by the receding waters of the flood, but none stayed more than a few hours.

---

* Mr. Church records this species under the name *L. novæ-hollandiæ*, but the southern Spur-winged Plover is not known to occur in North Queensland, where *L. miles* is common.—Editor.

Gallinago hardwicki. Australian Snipe.—I had expected to see vast numbers of this hardy traveller, but only one small flock (barely 50) came to my view. I am informed by the local inhabitants that usually large numbers visit the plains and many are shot annually.

Rostratula australis. Australian Painted Snipe.—One of these beautiful birds settled on the edge of the lagoon, while I was camped there. My effort to secure a picture of this magnificent species was, I regret to say, a failure.

Eupodotis australis. Australian Bustard.—A fair number of these fine birds was seen by me. They are shot extensively, and, I must admit, prove a delightful change to the inevitable "corned beef and camp pie" of the man in the bush. The argument against their killing is, no doubt, sound, but, weighed in the balance against an empty "tucker bag," I fear it is found "wanting."

Megalornis rubicunda. Brolga. These peculiar birds were quite common, and I had many views of their square dances. They were very shy, and I was unable to obtain a photograph, though I tried many times. Ungainly fliers, but very graceful when seen on the bank of the bore drain. They seem to be regarded with a certain amount of awe by the few blacks that live in this district, and are in some peculiar way credited with the powers of forecasting the weather. One old black boy (Peter by name), the head rain-maker of the tribe, told me he had to consult the Brolgas before any success could attend his efforts. I found several nests among the grass at the edge of the lagoon. The clutch is apparently two eggs, large white; some are faintly mottled reddish-brown, others darker. The nest itself in every case consisted of dried grass piled about 10 inches above the ground. No sort of covering was used when the parent birds left the nest; but, though apparently easily distinguished, I often had difficulty in observing the eggs. This, I believe, is due to the faint brownish markings.

Threskiornis molucca. Australian White Ibis.—Saw several flocks of this very fine bird. One I was able to approach quite closely. Both the lagoon and the river sheltered these birds. I saw also a couple of large flocks flying low across the plains.

Threskiornis spinicollis. Straw-necked Ibis.—Only one was recorded. It was feeding in the bore drain.

Plegadis falcinellus. Glossy Ibis.—I had the pleasure of seeing one large flock of over two hundred fly right up the river and camp at the lagoon. They left almost immediately, however, and again I was unable to secure a picture of them.

Egretta intermedia. Plumed Egret.—These very fine birds are, I believe, fairly numerous in the district, but I noted only one pair on the river banks. I was unable to approach them closely, and it is possible I mistook them for *Egretta alba* (White Egret), but I do not think so, on account of their size.

Notophoyx novæ-hollandiæ. White-faced Heron.—I have only one record of this common bird, and I believe it is regarded as quite rare in these parts.

Notophoyx pacifica. White-necked Heron.—Several of these fine birds were noted, both at the drain and along the river.

Demigretta sacra. Reef Heron.—I am very doubtful about including this bird in my list, but late in the evening, during a trip down the river, I noted one about three miles from the mouth. The failing light and short space of the observation, were not conducive to great asccuracy.

Bittern.—I am unable to classify this species as I heard only its booming notes. Several attempts to "flush" the birds from the mangroves proved unsuccessful. Probably they were Mangrove Bitterns (*Butorides stagnatilis*).

Dendrocygna javanica. Whistling-Duck.—These birds were fairly common, and on more than one occasion graced our "festive board."

Dendrocygna eytoni. Plumed Whistling Duck.—I shot one of these two days before Christmas, and have since then seen several more on the lagoon. They appear to mix freely with *D. javanica,* but whether inter-breeding takes place or not, I could not determine. All the specimens I shot were absolutely true to type.

Anas superciliosa. Grey (Black) Duck.—By no means as common as the two former species.

Virago castanea. Chestnut Teal.—I saw two only on the bore drain. They may have been *V. gibberifrons* (Grey Teal), but I could see no white band on the neck.

Phalacrocorax, sp. Cormorant.—Noted a pair on a trip down the river, but they were very shy, and flew away as soon as we came within 100 yards; so that I am unable to state definitely whether they were the Pied Cormorant (*P. varius*).

Sula leucogaster. Brown Gannet.—Three of these foolish "Boobies" roosted on the mast head and rigging of the "Kalatina" the night it entered the mouth of the Albert River.

Fregata minor. Greater Frigate-bird.—Though this bird has really no place in these notes, I feel that so noble a flier cannot be overlooked. Two followed the boat from the Norman River across the Gulf of Carpentaria, and their wonderful gliding performances brought forth applause from all on board.

Pelecanus conspicillatus. Australian Pelican.—Four of these huge birds visited the plains immediately after the flood, and remained several days. Their immense wing-span and peculiar "wheeling" flight made them objects of interest to all.

Circus assimilis. Spotted Harrier.—I noted quite a number of these birds during my rides over the plains. Their method of "beating" the long, wavy grass was very systematic. Each bird appeared to take a given area, and though I watched them for a considerable time, they seemed quite satisfied to go over their own particular patch of ground again and again.

Circus approximans. Swamp Harrier.—One of these birds continually worked the stunted mangroves and grass at the edge of the river. I never saw the second one, and do not believe the female was in the vicinity. One day I shot a small snake, and, almost at once, a Swamp Harrier swooped down and flew off with it.

I need hardly say that the "Falconidae" are perhaps the most difficult of birds to recognise on the wing; it is more than probable therefore that I may be mistaken in some of my identifications.

Milvus migrans. Black (Fork-tailed) Kite.—A large number of these useful birds stayed around the few scattered houses that constitute the town. Their flight is particularly interesting. The tail appears to take the place of a rudder, and can be elevated or lowered and twisted from side to side at will. The wings are, as far as I could judge, not moved at all. These birds are fortunately protected by the local inhabitants, who realise the useful work they perform.

Lophoictinia isura. Square-tailed Kite.—I have a note of one of these birds observed during a visit to the lagoon, but my view was from a fair distance, so that I cannot speak with certainty.

Ieracidea berigora. Brown Hawk.—These useful birds were quite common. As they lived chiefly on grasshoppers and insects, they had a very "rich" field in which to work.

Haliastur indus. White-headed Sea-Eagle.—A fine specimen of this species was observed on the coast. Its graceful flight and complete indifference to human interference, made it a popular object of interest.

Calyptorhynchus, sp. Black Cockatoo.—Several small flocks of these birds flew over the lake whilst I was there, but as they did not alight on any of the trees, I had small chance of observing them closely. Their size made me think they were not the Red-tailed Black Cockatoo (*C. banksi*).

Alcyone azure. Blue Kingfisher.—These very beautiful birds were common on the river, and I also noticed a pair on the bore drain.

Cacatua, sp. White Cockatoo.*—One large flock of these noisy birds stayed until the first rain among the mangroves on the river-bank. They left for Squires Island, where they usually breed, early in December.

Cacatua sanguinea. Little Corella.—A small flock visited the town after the flood in January. A specimen was brought to me by one of the children. I was very unfortunate in not seeing any Parrots during my stay in the town. I am, however, hoping to see some of the Grass-Parrots on my trip through to the Northern Territory.

Podargus strigoides. Tawny Frogmouth.—Flushed one specimen during a trip down the river. Apparently these birds are rare in the district.

Halcyon pyrrhopygius. Red-backed Kingfisher.—I saw one bird almost at the mouth of the river; but, though I searched for a long time, I could not find any trace of a mate or sign of a nest.

Halcyon sanctus. Sacred Kingfisher.—Several pairs are recorded in my diary; the lagoon, the bore drain and the river, each had its pair. Their bright plumage and lightning flight, afforded me much enjoyment.

Merops ornatus. Rainbow-bird.—I have two notes of this lovely bird; I may add, my favourite among Australian birds. I have spent many hours in sheer rapture watching its graceful flight. When it alights for a brief moment I find each time a new tone or another unsuspected graceful line in its plumage. It is very aptly named Rainbow-bird.

Scythrops novæ-hollandiæ. Channel-bill Cuckoo.—I was greatly pleased to see this peculiar bird. I had heard much when I first arrived here of the wonderful "hornbill" that camped annually on the river-bank. My first encounter was about 3 miles up stream from the town. I was having my lunch under a small coolibar tree, when I was very much startled to hear a weird shriek proceeding from the river bank. Jumping up, I forced my way through the mangroves. As I reached the water's edge, another shriek almost unnerved me. In another moment, however, my fears were set at rest. A bustle in the branches above, a slight "whirr," and a fine specimen sailed sagely across the river. I did not see the "mate" of my tormentor (I believe he shrieked merely to frighten me), but I judged him to be a male. He stayed for nearly a fortnight. Apparently he well-earned his name of "Storm-bird." His arrival was just two days prior to the heavy rains which flooded the district. I saw him once more when the flood waters had gone down.

Cheramœca leucosternum. White-backed Swallow.—Several inhabited the "bore" drain, but left early in January.

Hylochelidon ariel. Fairy Martin.—These very pretty birds lived in the sandy banks of the river, about six miles up stream. I saw several of their peculiar nests. The narrow stem, puzzled me for some time, but I am of the opinion that it is a mild form of "camouflage." There is no doubt that it does, to a great extent, deceive one as to real position of the eggs.

Microeca fascinans. Jacky Winter.—Very common about the town and along the bore drain, river banks and lagoon.

Microeca brunneicauda. Brown-tailed Flycatcher.—A cat caught one of these birds one day, and a close examination revealed the brown tail feathers. I do not think the species is common in the district.

Rhipidura leucophrys. Black and White-Fantail.—Several specimens stayed about the town. I could not find any nest.

Seisura inquieta. Restless Flycatcher.—I observed a pair of these on the edge of the lagoon. Their quick flight and sudden hover made them amusing to watch.

---

* The writer identified this Cockatoo as the Corella, *Licmetis tenuirostris*, but we think this must have been a mistake.—Editor.

Pteropodocys maxima. Ground Cuckoo-Shrike.—Had a fleeting sight of one during a visit to the lagoon. The banded abdomen and elevation of the tail after flight led me to believe the bird belonged to this species.

Graucalus novæ-hollandiæ. Black-faced Cuckoo-Shrike.—Fairly common. Considered a useful bird by the pastoralists; observed several at the lagoon and along the river banks.

Artamus leucorhynchus. White-breasted Wood-Swallow.—Saw a small flock one day while visiting the ruins of the old meat works; they remained in the vicinity only a few days.

Artamus hypoleucus. Grey-breasted Wood-Swallow.—Several of these fine birds were in company with the previous species.

Grallina cyanoleuca. Magpie Lark.—These were common about the town and river-banks.

Plectorhyncha lanceolata. Striped Honey-eater.—Am very doubtful about this species. I observed what I took to be one among the stunted coolibars on the edge of the lagoon, but it was highly probable I was mistaken.

Malurus melanocephalus. Orange-backed Wren.—Noted a pair of these gorgeous birds among the long grass on the bore drain. Undoubtedly, the male is a very noble bird, quite bold and full of restless activity. I was able to approach them closely. I was unfortunate in being unable to locate their nest, but many days' watching failed to reveal their secret.

Anthus australis. Australian Pipit.—Quite common; seen in company with the following species.

Mirafra horsfieldi. Bush Lark.—Delightful bird, lovely songster, and quite common. One day, while riding to the lagoon, I noticed a specimen very much lighter in colour—almost a very light buff—back, wings, head light buff, under almost white, legs, bill dark brown, eye black, note similar to bush-lark, also same soaring flight.

Cinclorhamphus cruralis.—Brown Song-Lark.—Noted two of these during my rides over the plains. They were very tame, and I was able to approach them quite closely. Perhaps the fact that I was on horseback accounts for this.

Corvus cecilae. Australian Crow.—A few of these birds were noted flying over the plains, but they were by no means common.

The Red-faced Fig Parrot.—On page 26 of *The Emu*, Vol. XXIV., I find an interesting account of an interesting bird. It is the so-called "Fig Parrot," known to me under the name of *Cyclopsitta coxeni*. In or about 1870, I sent a young friend, the late Mr. Pettard, of Launceston, on a collecting trip to the Richmond River, N.S.W. Pettard, who was a good all-round collector, sent me, among many other birds, six specimens of *C. coxeni*, several of the Rufous Bristle-bird (*Sphenura broadbenti*), and the Albert Lyrebird (*Menura alberti*). At this time my dear old friend, the late Count de Castelnau, then French Consul-General for Australia, had a keen interest in birds, in addition to his entomological favourites. I let the Count have four of the *coxeni*, two *Sphenura*, and two *alberti;* the others were secured by Professor McCoy for the National Museum, Melbourne. When Pettard was at the Richmond River, he made his headquarters at Lismore—then, I believe, in its natural beauty. I may add that when the Count died, his collections went to the Museum of the Jardin des Plantes, Paris.—C. FRENCH, sen. (late Government Entomologist, Victoria).

A Method of Obtaining Series of Bird Pictures

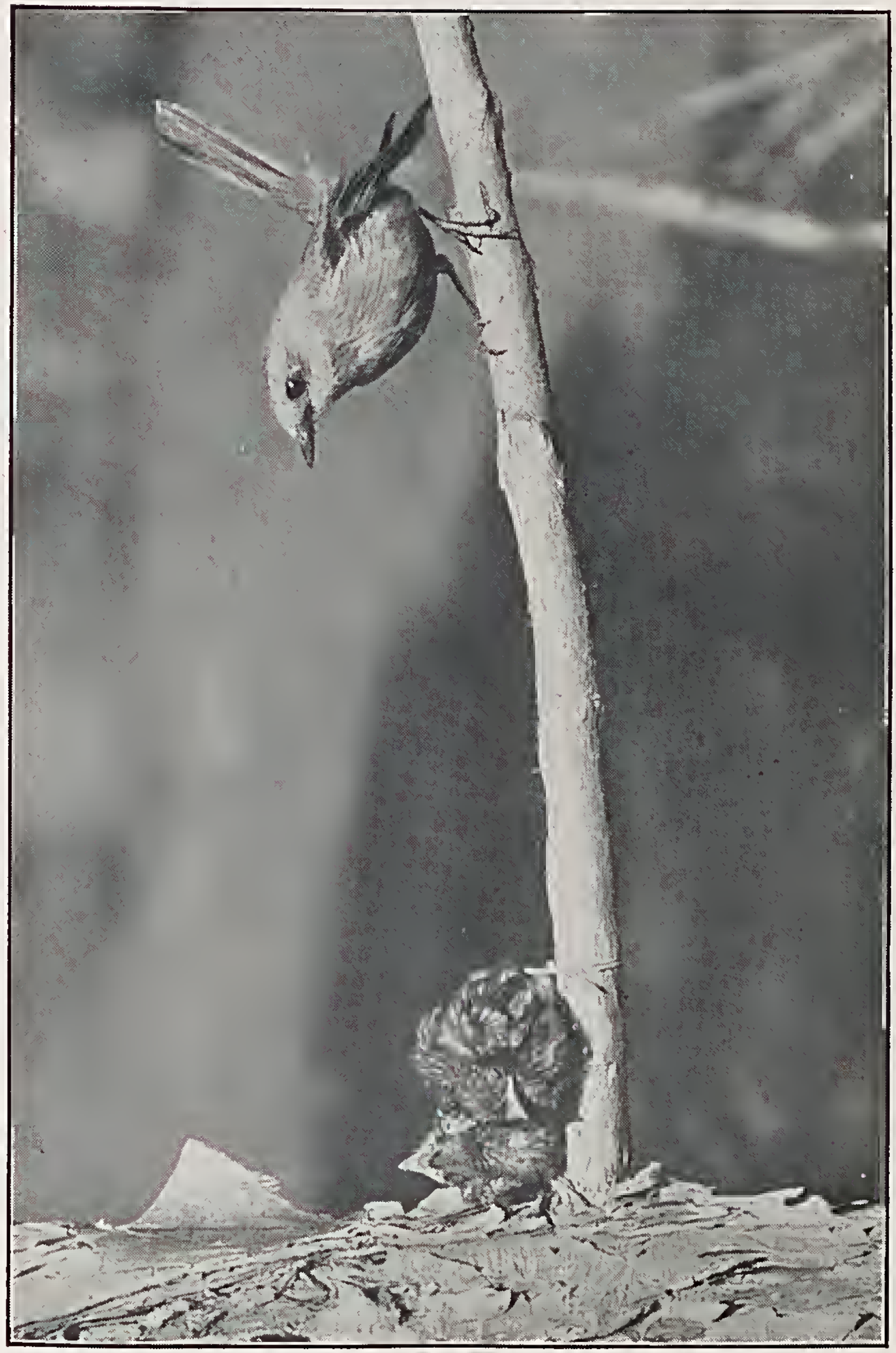
By P. A. GILBERT, R.A.O.U. Sydney.

Bird photography, apart from the insight it gives into the home life of our wild birds, affords an opportunity of obtaining pictures of general interest and scientific value. A little special knowledge, however, is requisite to achieve the best results. Literature on bird photography is plentiful, but it is doubtful whether the books published help to any great extent to put the beginner on the right track for obtaining uniform pictures, or supplying the information most needed. Further, no particular scheme of bird photography seems to have been introduced that aims at procuring standard series of pictures of our wild birds. The present tendency is to photograph the bird in profile alone. As many of our birds once common, are becoming rare, an effort should be made to record their home life before the present favourable conditions vanish.

The following hints attempt to impart a method that allows variability in artistic setting, besides obtaining ornithological records in series. In other words, they outline a procedure that enables the student to secure uniformity and photographic accuracy in making pictorial series of birds in various postures. This working method has also been contrived to lift bird photography a little beyond the mere placing of the camera down at random and chancing results.

It is an advantage if the bird photographer possesses a camera with fairly long bellows extension, so as to allow free focussing. and the near approach to the subject. A six-inch anastigmatic lens will be taken as a basis, and four factors must be taken into consideration before we commence. First a scale on the bed of the camera must be provided for, which will indicate distances from the lens to the subject. Next, the depth of field must be ascertained which corresponds with the particular distance indicated on the scale. Then, the length of the bird to be photographed, and last, the size of the image on the plate when the indicator of the scale is set to a certain point.

How to Set the Scale.—Focus on an object two feet away. then mark the bed of the camera to correspond. Use some part of the camera as an indicator, so that, when you rack to this mark out in the bush, you will know that the lens is two feet away from the bird. Now focus on the same object five feet away, and again mark the bed of the camera to agree with this distance. With a six-inch anastigmatic lens the bellows extension between these two marks will be about one and a half inches. Divide this into eighths of an inch. If it is deemed undesirable to mark the camera, the scale can be worked out on a piece of paper and then pasted on the bed, and may be washed off if so desired. The eighth-inch points can be marked alpha-



Yellow-breasted Shrike-Robin (Yellow Bob) with Young

Photo. by P. A. Gilbert. R.A.O.U.

UNIVERSITY OF MELBOURNE

betically, numerically, or directly with the distances they represent. Once the scale is adjusted you simply rack to any given point, refer to the scale, and you know at what distance you are photographing.

Formula.

Scale Divided into ⅛ inches.	Distance of Lens from Object.		Depth of Field in inches at F/8	Length of Image when Object is 6in. long.
	ft.	in.		Inches
A —|—	2	0	2.5	2.0
B —|—	2	3	3.25	1.87
C —|—	2	6	4.0	1.75
D —|—	2	9	4.5	1.62
E —|—	3	0	5.0	1.5
F —|—	3	3	6.5	1.37
G —|—	3	6	8.0	1.25
H —|—	3	9	9.5	1.12
I —|—	4	0	10.25	1.0
J —|—	4	3	11.0	0.87
K —|—	4	6	12.5	0.75
L —|—	4	9	14.0	0.62
M —|—	5	0	16.25	0.5

Every eighth of an inch racked produces three results. An alteration in the distance of the camera from the object, a change in the depth of field, and a larger or smaller image on the focussing screen, according to the direction of the adjustment. Thus it will be found that each eighth inch racked one way or the other represents three inches nearer to or farther from the object. Whatever is taken off or added on with the scale, the image decreases or increases accordingly; while the depth of field widens or shrinks in accordance with the changed position.

The figures of the formula are approximate, but sufficiently near for all practical uses, it being thought advisable not to encumber the reader with infinitely small fractions. Suppose that the photographer has located a nest with young, and the parent bird is six inches in length. On referring to the formula it will be found that the camera has to be set up at a distance of three feet three inches, to get a depth of field of about six and a half inches, while the image will appear about 1⅜ inches on the screen. If the focussing is done correctly, the bird may be photographed in any attitude required on the point in focus. Three-quarter breast on, back on, or profile may be secured, and thus a series will be obtained of the bird in every conceivable attitude. If, however, the bird does not alight or rest where you anticipate it to, a readjustment of focus must be brought about. As one-eighth inch racked on the scale this way or that reduces or increases the distance of the object three inches, there will be no trouble in making the necessary adjustment, without the bother of refocussing with the screen.

With a six-inch lens two feet from an object six inches in length, an image of two inches in length will show on the screen, and at five feet about half an inch. For every inch the subject is longer or shorter than six inches, add on or take off one-sixth of the length of the image mentioned. Thus, the image for a six-inch bird at two feet is two inches, a seven-inch bird will be two and a third inches, one five inches in length will measure about one and two-thirds of an inch on the screen, while the eight-inch bird will show an image of two and two-thirds of an inch, and four inches will appear on the glass as one and one-third inches.

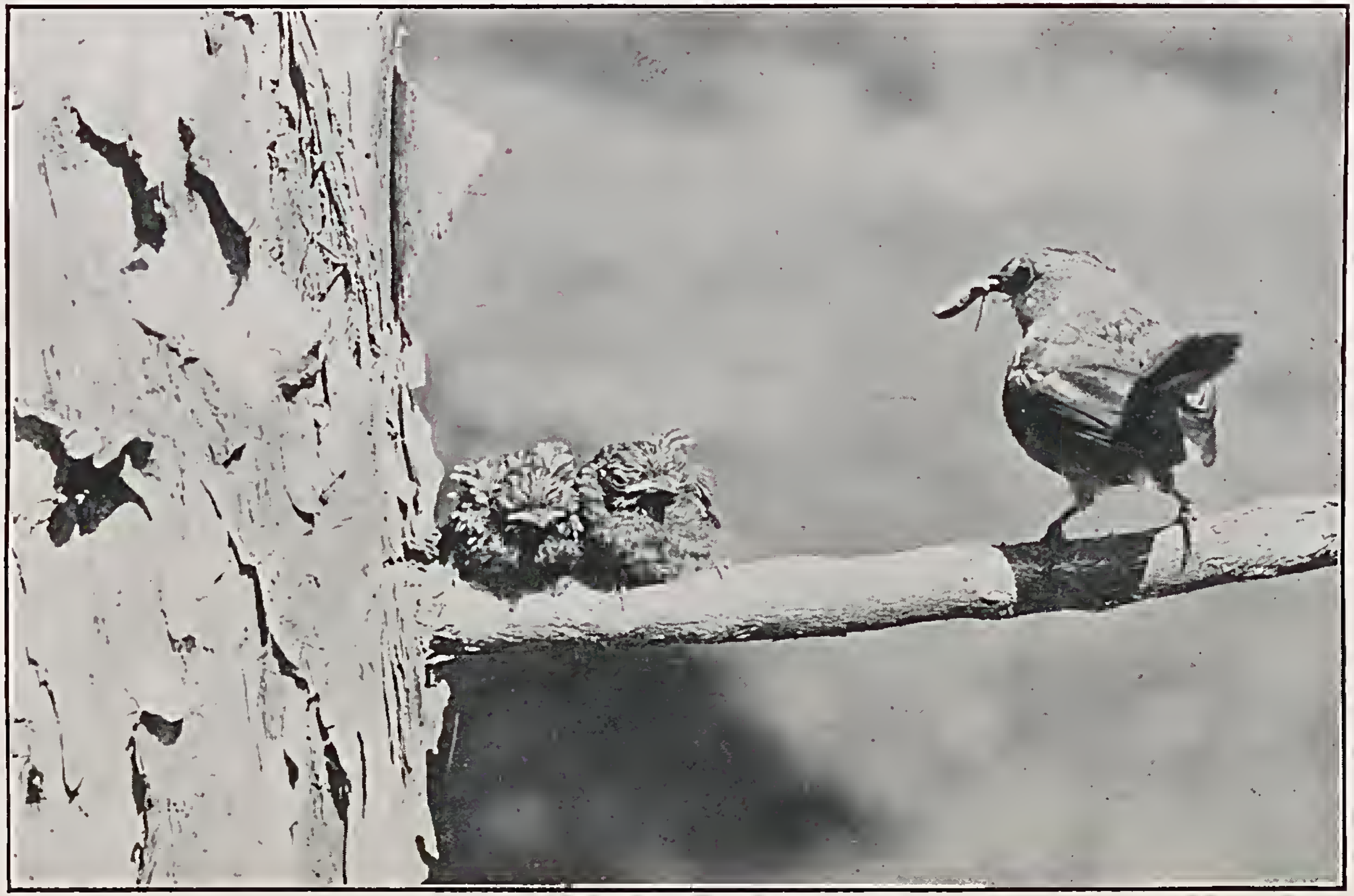
Natural obstructions will always cause a modification in the use of this scheme. For instance, it is sometimes impossible to work to this formula in a tree. Even so it has its advantages, as a reference to the scale will intimate whether the results justify the attempt, as the distance from the nest and the size of the picture is approximately known. It is useful to mark the negative with the scale letter, which serves as a guide if an enlargement to natural size is required.

Sharply defined large printing pasted on a piece of cardboard six inches by three will help to gain accuracy in focussing, and also convey some idea of the relative size of the image if the length of the bird is known beforehand. The piece of cardboard is placed where you observe that the bird alights or rests during its visits to the nest. Focus on this, using the largest aperture, until a perfectly sharp image is obtained. If the light will allow quick shutter work, and the bird is amenable to the camera, stop down to a smaller aperture. By this means greater depth is attained, and consequently a better picture of the bird and its nest or nestlings.

On the contrary, if the bird is active and quick in movements to and from the nest, a larger aperture and shorter exposure is necessary. The times of exposure vary from ½ to 100th of a second on nesting subjects, and the operator will do well to study rapidity of movement in birds and the light if best results are sought.

Individual birds vary greatly in temperament within the same species. Their habits, on the other hand, are remarkably uniform, especially as regards food and nesting habits. Two pairs of birds of the same species may be seen nesting in immediate proximity to one another. This pair is quiet and fearless, while that pair flies away in terror at the least move of the intruder. All this behaviour has to be carefully noted before putting up the camera, and makes known the extent of hiding to be resorted to, or the distance at which the camera has to be fixed.

One of the most successful ways of hiding the camera is to cover it with a green cloth of medium shade. Sprigs and branchlets of the tree, sapling or shrub similar to that in which the bird has built, should be fixed over the cloth. The plant which contains the nest should not be disturbed any more than

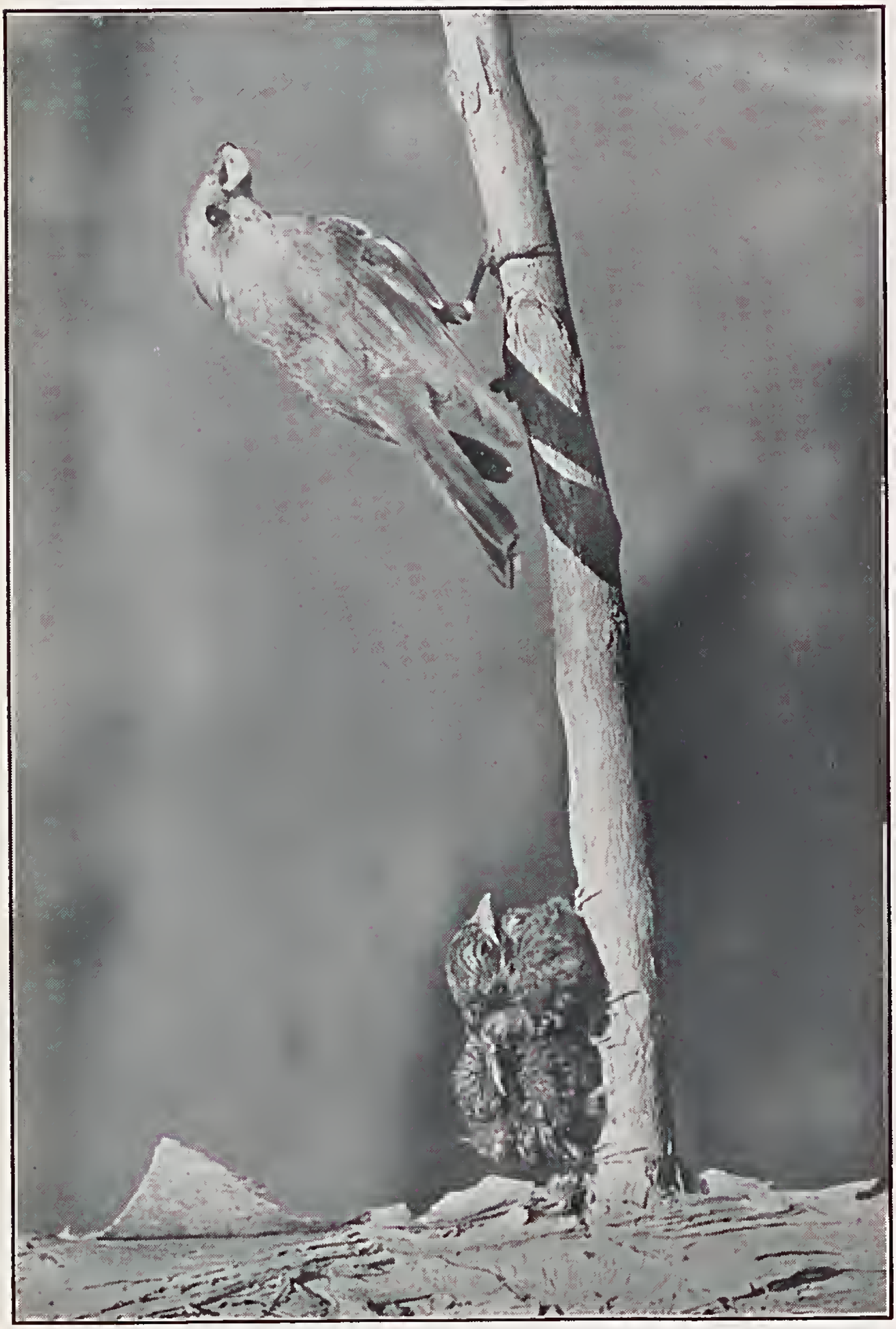


Yellow-breasted Shrike-Robin (Yellow Bob) with Young

Photo. by P. A. Gilbert. R.A.O.U.

NATIONAL MUSEUM MELBOURNE

NATIONAL MUSEUM [illegible]



Yellow-breasted Shrike-Robin (Yellow Bob) with Young

Photo. by P. A. Gilbert, R.A.O.U.

is necessary to let the light in. Foliage used to hide the camera should be gathered from neighbouring vegetation, while the immediate surroundings of the nesting site should be disarranged as little as possible. Small branches tied to the tripod are another useful precaution. Attention to these details helps to familiarise the bird at once, and soon dispels that characteristic shyness which often overtakes it if no such trouble is taken.

A development of the method here described will not only help to obtain true records of bird postures, but, in addition, photographs will be produced that give accurate likenesses of feather contours, which are not always found in skins, while series would be invaluable to taxidermists as guides in mounting specimens in conformity with their natural dispositions.

The illustrations clearly show the latitude of movement when the bird is within the depth of field. It is advisable to work with an inch or two more depth than the length of the bird. A six-inch bird in an eight-inch depth would render the surest results.

	Inches.	Nesting Period.
Short-billed Tree-tit	3.5	Sep.-Dec.
Brown Fly-eater	4.1	Sep.-Jan.
Grass Warbler	3.6	Oct.-Feb.
Little Tit-Warbler	4.0	Sep.-Jan.
Striated Tit-Warbler	4.0	Aug.-Dec.
Spotted Pardalote (Diamond Bird)	3.35	July-Dec.
White-fronted Chat	4.6	Aug.-Mch.
Orange-winged Tree-runner	4.5	Aug.-Dec.
Blood Bird	4.3	Sep.-Dec.
White-naped Honeyeater (Black Cap)	5.5	Aug.-Feb.
Silver-eye	4.75	Sep.-Feb.
Brown Flycatcher (Jacky Winter)	5.2	Aug.-Jan
Red-capped Robin	4.75	Sep.-Dec.
White-throated Flyeater (Native Canary)	4.3	Sep.-Dec.
Blue Wren	5.0	July-Jan.
Speckled Warbler (Jenny Wren)	5.0	Aug.-Dec.
Yellow-tailed Tit	4.5	July-Dec.
White-shafted Fantail	6.25	Aug.-Dec.
Black and White Fantail (Wagtail)	8.0	Aug.-Dec.
Yellow-breasted Shrike-Robin (Yellow Bob)	6.5	Aug.-Dec.
Reed Warbler	6.2	Aug.-Feb.
Rufous-breasted Whistler	6.75	Sep.-Dec.
Spinebill	6.5	Sep.-Dec.
Brown Tree-creeper	7.2	July-Nov.
Yellow-tufted Honeyeater (Yellow Whisker)	7.5	July-Dec.
Noisy Miner (Soldier Bird)	10.0	Aug.-Dec.
Magpie-Lark (Pee-Wee)	10.5	Aug.-Dec.
Grey Thrush	9.5	Aug.-Dec.
Coach-whip Bird	10.75	July-Nov.

Forgotten Feathers

AN OLD-TIME NATURALIST ON TASMANIAN BIRDS.

In West's *History of Tasmania*, written in 1850, published in 1852, a short section is devoted to the birds of the island. This was written by Ronald Gunn, F.R.S., at the author's request. He puts in a good word for the Hawks, which he says it would be wise for the colonists to spare, as they are most powerful and persevering enemies of the snakes which infest much of the island. "The beautiful White Hawk (*Astur novæ-hollandiæ*) erroneously called an albina by Mr. Gould, once very abundant, is now becoming rare, having been nearly extirpated for the sake of its skin, by the zeal of collectors." Regarding Parrots: "The Green and Rosehill Parrots (*Platycercus flaviventris et eximius*) occur in immense flocks in some places, and White Cockatoos (*Cacatua galerita*) were at one time to be seen in great numbers, but are now becoming scarce." . . . "Two Pigeons and four species of Quail are all the rasorial birds in the island: the true gallinaceous birds being wholly wanting. Of the thirty species of grallatores, the most remarkable is the Emu. Very few individuals can now exist in the island, and it is to be feared that its total extinction will be effected ere it can be ascertained whether the Tasmanian bird is identical with that of New Holland. Tame Emus are common in the Colony, but the original stock of most of those domesticated was introduced from Port Phillip." This throws important light on the supposed Tasmanian birds seen by Mr. B. R. Dyer at Mona Vale and New Norfolk, in the late fifties of last century [*Emu*, XXIII., page 222]. Mr. Gunn does not seem to have taken much trouble to ascertain whether the island bird was actually extinct or not at the time of his writing (1850), but in all probability it was, and those seen by Mr. Dyer were most likely of the Victorian species.

The author mentions the immense flocks of Mutton Birds (*Puffinus tenuirostris*) existing in Bass Strait, and that Capt. Flinders, when near the north-west extremity of our island, saw a stream of them from 50 to 80 yards in depth, and 300 or more yards in breadth, flying as compactly as free movement of their wings would allow; and during a full hour and a half this stream of petrels continued to pass without interruption. "This bird burrows in the ground, forming what are called by the sealers 'rookeries,' and a considerable trade was at one time carried on in their feathers, eggs and salted bodies." Mr. A. J. Campbell's friend, the domestic cat, which has "gone bush" [*vide Emu*, XXIII., page 175], was, even at that time, three-quarters of a century ago, a destroyer of our bird-life, for Mr. Gunn mentions that, although European rats and mice had become common all over the island, the domestic cat, gone wild, was proving very destructive to Quail, and to those species which are much on the ground.—H. Stuart Dove, F.Z.S., W. Devonport, Tas.

Stray Feathers

A Second Australian Specimen of the Wandering Tattler.—Since Mathews and Iredale in their latest work on Australian birds ("*A Manual of the Birds of Australia,*" I., 1921, pp. 142 and 143) cite but one instance of the occurrence of the Wandering Tattler (*Heteroscelus incanus,* Gmelin), in Australia, it may be of interest to note here the existence of a hitherto unrecorded specimen of this species in the Museum of Comparative Zoology, Cambridge, Mass., U.S.A.

The bird in question (M.C.Z. 56,067) was taken February 11, 1897, by Mr. Milton J. Flood, of Maldon, Mass., U.S.A., in the course of an extensive visit to Australia and the Pacific Islands. The original label fails to give the sex of the specimen, and the locality (except the word Australia) is omitted, its place being taken by a journal number. Owing to Mr. Flood's untimely death at the hands of natives in New Guinea his journals were lost, and it is therefore impossible to learn any more concerning this, or many other specimens in the large collection that he made.

I have examined a considerable number of species collected in Australia by Flood, and all appear to have come from Queensland, so it may be safely assumed that this specimen of the Wandering Tattler was likewise taken there.—JAMES L. PETERS, Museum of Comparative Zoology, Cambridge, Mass., U.S.A.

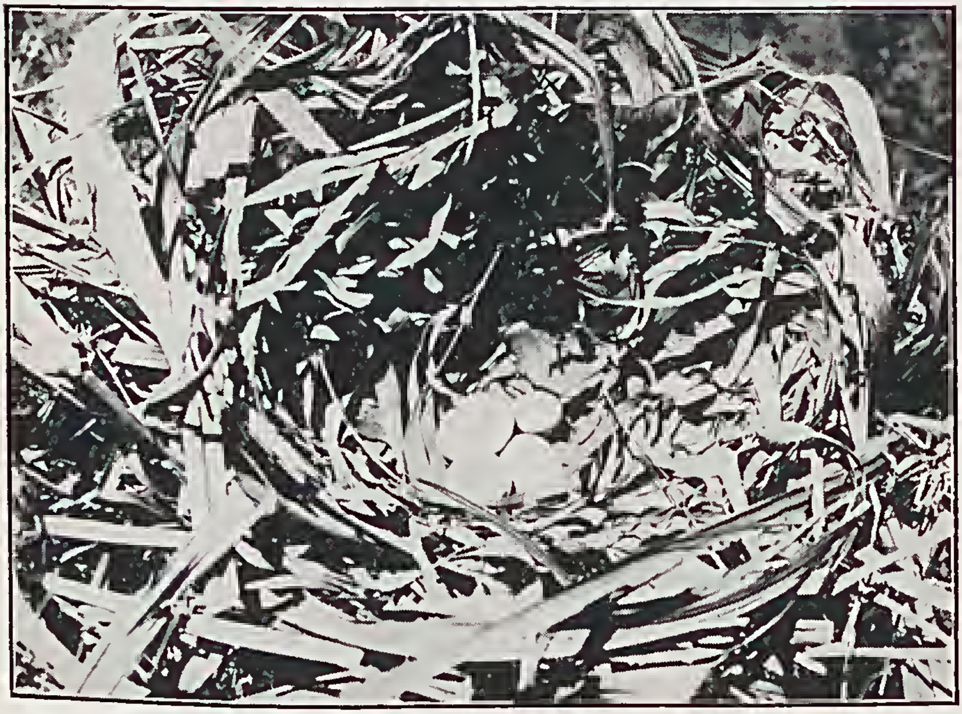
* * *

The Spotted Ground-bird.—A pair of Ground-birds (*Cinclosoma punctatum*) claim a slope of the hillside here as their own. Last year, when spending a few weeks of the Christmas vacation in the locality, I noticed this pair. They were accompanied by three well-grown young, which, except for their slightly smaller size and their babyish call, were not easy to distinguish from their parents. From my bed on the verandah of the cottage, which my sisters and I rented, I could watch this family in the early hours of the morning. While all was quiet, they would search close to the house, and appeared to be picking up crumbs. They even ran across the end of the verandah. Once, when we came suddenly upon them, they flew, two of the birds settling on the lower branches of a small gum tree. One of these was a parent bird, which from its perch uttered its warning, whispering sort of whistle. Our home is now in the area searched over by the same pair, and in the early morning they often frequent the yard. A little over a week ago the female was sitting. When she came off for her daily exercise, she made a call similar to that of a young one, whereupon her dutiful spouse would at once set to work to hunt up some fragment for his lady. It was pretty to watch both within a few steps of the back door, hunting through the vegetables, where they picked up a few crumbs as well as other small items I could not classify. One morning they found some of the fowls' bran and pollard mixture which had been dropped. It was a great find, evidently, by the way they both enjoyed their meal. Thereafter some of the mixture was always "accidentally" dropped for the free fowls of the hillside. For a week their visits have ceased. Soon I hope to hear them again, bringing their toddlers with them, as soon as the little legs can safely manage the many mazes amidst the tangle of heath, ferns, and fallen litter. Only once have I found a clutch of four eggs in the nest of these Ground-birds, and that was at Cleveland, in the Midlands, where I came on a nest beneath some large stones. Some day, perhaps, when the sense of security between the present pair and the human partners of their domain is more developed, I may succeed in obtaining a picture of them. It would be interesting, especially if it showed them enjoying the fowls' breakfast.—Miss J. A. Fletcher, R.A.O.U., "Lyeltya," Eaglehawk Neck, S. Tasmania.

* * *

On the Notes of the New Zealand Boobook Owl.—In several back numbers of *The Emu*, I have noticed considerable discussion as to the author of the "morepork" notes heard at night. Several observers are quite emphatic in their opinion that they are uttered by a Podargus; others are equally confident that an Owl (*Ninox novæ-seelandiæ*) is responsible. Such being the case I have thought it advisable to give the notes of the New Zealand *Ninox* (now considered to be the same species as the Australian bird), and as no Podargus occurs in New Zealand, confusion between the notes of the two birds is impossible. This Owl is universally called the "Morepork" in all parts of New Zealand, and most certainly its notes are identical with its local name. The quality of the notes varies greatly, however. Some are quite clear, and uttered with a slight drawl; others are much quicker. I have heard one bird near Masterton give them in a basso-profundo tone, which gives the impression that the bird is husky. One writer in *The Emu* stated that *Ninox* never uttered the "morepork" notes in rapid succession, but that the bird responsible for that performance was a Podargus. On 19th April, 1923, when in the Tauherenikau Valley, in the Tararua Mountains, I heard a Morepork utter this note ten times in very rapid succession, without pause. Other notes I have heard this bird use are a sharp-sounding "ow" and a scream-like "airck." Mr. and Mrs. H. F. Chaffey, at their hill residence near the head waters of the Takaka River, Nelson, N.Z., record in Mr. James Drummond's "Nature Notes" column their experience of a male Morepork, on the 14th November last. It sat on a post in front of the cottage window, and began with a guttural "por, por, por, por," repeated quickly from fifteen to twenty times, as if the Owl

NATIONAL, [illegible] [illegible]



Nest of Pheasant Coucal (*Centropus phasianinus*) containing an undersized egg.

Photo. by Rev. C. O. Edwards.

Nesting site of the White-eared Honeyeater (*Meliphaga leucotis*) in grass tussock in centre of picture, Thredbo River, N.S.W.

Photo. by A. S. Le Souef, R.A.O.U.

were trying to break a record. It finished with a "morepork," drawn out and well pronounced. Apparently out of breath with the effort, it took a spell for a few minutes, and then repeated the performance, uttering the "por" notes more quickly, if possible. Mr. Chaffey believed the female was sitting at the time.—Robt. H. D. Stidolph, R.A.O.U., Masterton, N.Z.

* * *

A Nest of the Mallee Emu-Wren.—Just recently I received rather a remarkable nest of this little semi-desert form of the Emu-wren. It is remarkable in so far as a quantity of cast snakeskin was used in the construction and decoration of the nest. The cast snakeskin was broken into small pieces, and the nest, when viewed in bright sunlight, had a shining appearance. It would be interesting to know if any of your readers have records of snakeskin being used by this bird, or any other of the genus (*Stipiturus*).

The nest was taken in the Mallee, in the north-west of Victoria. It is almost globular in form, measuring 3 inches in height and width by 3¼ inches from front to back. The entrance, which measures 1¼ inches, has a slight hood, and is similar to the entrance to the nest of a *Malurus*. The main wall is made up of dark-coloured grasses, pieces of dark fibre, picked up from under the porcupine grass, and quite a quantity of the needle-like spines from porcupine grass (*Triodia*) well worked in together. In the bottom of the nest itself, a thick bed of thistledown, snakeskin, and cocoons was laid, and finally a snug lining of soft feathers, amongst which are noticed several green feathers of the Varied Parrot (*Psephotus varius*). Externally, the nest is beautifully decorated with cobweb, cocoons, feathers, thistledown and a quantity of cast snakeskin. The nest was placed 18 inches from the ground, and well down amidst the spines of the porcupine bush. It contained three fresh eggs, which are smaller and more rounded than typical eggs of the Emu-wrens from more favoured places near the coast-line. The eggs, moreover, are more freckled all over, especially near the large end, though the usual zone of freckles, as in Emu-wrens' eggs, is barely defined in the set under notice.—J. Neil McGilp, R.A.O.U., King's Park, Adelaide.

* * *

The White-eared Honeyeater (*Meliphaga leucotis*).—This familiar bird is common in the Monaro district, and its delightful notes add life and music to the lonely valleys of the Upper Snowy and Thredbo Rivers. Here it finds a happy home among the overhanging tea-trees which in the summer are covered with flowers and crowded with small beetles. The birds usually nest low in the bushes, but in one instance a cosy cup-shaped nest was placed in a tussock of grass within a foot of the ground.—A. S. Le Souef, Sydney.

A Nest of the Pheasant Coucal.— The nest of the Pheasant Coucal (*Centropus phasianinus*) shown in the accompanying photograph was found in a stool of cane at one of the sugar-cane farms in Ayr, North Queensland. The nest was built of cane-trash and lined with gum leaves. One of the four eggs was undersized, as is clearly visible in the photograph.—Rev. C. O. Edwards, The Rectory, Ayr, N.Q.

* * *

How to Spell "Emu."—Dr. Alfred Newton, in his "Dictionary of Birds," spells the name "Emeu," which seems to me preferable to the rather abrupt form now in use. The Californian writer Bret Harte used the same orthography as Dr. Newton, in the humorous poem about the Naughty Emeu which plucked and swallowed a diamond scarf-pin from a gentleman's cravat, thereby causing an irremediable breach between two fond lovers. It was, however, Rev. Bobby Knopwood, our first Tasmanian chaplain, who got the utmost out of the name by the insertion of no less than three "e's" in a word of six letters! Mr. Knopwood, with Captain Merthon and several others, boated up the Derwent to about 30 miles above Sullivan's Cove, then walked several miles up the west side of the stream. In his diary, under date of 7th March, 1804, he writes: "We walked on the west side of the river; hills very high. When one side of the river was hilly, the other was a valley, and it continued so for more than 40 miles from the camp" (now Hobart) "where there was an extensive plain of very few trees. We see Kangaroos, *Emewes*, Pigeons, and Parrots." Knopwood's party were the first white men to gaze upon this extensive tract, now well known as the Macquarie Plains.—H. Stuart Dove, W. Devonport, Tasmania.

* * *

White-headed Stilts and Other Water Birds near Melbourne.— Whilst on a ramble near Edithvale on October 4, 1924, I came across a large temporary swamp, left behind by the recent heavy rains, lying across the Dandenong Road for a distance of perhaps three hundred yards, and extending about the same distance on either side. No means of crossing being at hand, and not wishing to make a long trip back, I had no recourse but to remove my footgear and commence to wade through. Just as I entered the water, a bird call unfamiliar to my ears attracted my notice, so my steps were immediately turned to the left side of the road, the direction whence the call originated. Wading a couple of hundred yards from the roadside, the water began to get shallower, and left several small areas of grass-covered mud, drying above the water. Here I flushed two long red-legged, handsome birds, which proved to be White-headed Stilts. They rose into the air uttering a call easily recognised as that of one of the water birds, and were joined by several others. In flight they appeared most remarkable birds, looking all out of proportion, the long legs trailing out behind, giving one the impression of a very long tail. I walked about the edges of the water for about an hour. At a moderate estimate, I should say there were at least fifty or sixty of these dainty, red-legged visitors, scattered about on my side of the road. There must have been an abundance of food to keep them located here, for another week found them still lingering. Some sportsman (?) had, in the meantime, shot one of the poor creatures into a mass of blood-stained feathers, and left it, wings outstretched, hanging on a nearby fence, a tribute to his wonderful marksmanship! I don't think they were nesting anywhere round, as they would keep flying to a different area if I approached near them. Probably a few more weeks would find them moving to more suitable nesting areas, but it was pleasant to find them so near the city. Another bird in evidence on the swamp, was a small white Tern in small parties, diving, or rather, falling, as it was too shallow to dive, into the water, after dinner no doubt. It was either the Fairy Ternlet or the Whiskered Tern, I think. Passing along, I flushed six Australian Snipe, also several Black-fronted Dotterels, feeding round the edges. On the farther end were a number of White-fronted Herons, also some Cormorants.—C. H. Borch, R.A.O.U., Newport, Victoria..

* * *

The Arrival of the Mutton-Birds—A Remarkable Sight.—The return of the Mutton-Birds to Phillip Island, in Western-port Bay, Victoria, an event that happens just about the same time every November, is described in an interesting report in the Melbourne *Argus.*

"Mutton-Bird" is the popular name for the Short-tailed Petrel or Shearwater (*Puffinus tenuirostris*), which nests on the islands of Bass Strait and on the Victorian coast. The birds come in myriads each year, remain through the summer, and then mysteriously disappear. Describing the latest arrival of these migrants, the *Argus* says: "Far on the eastern horizon a black patch could be discerned. It grew in size, until finally it could be distinguished as a flight of fast-moving birds. Outdistancing the rest, a dozen reached the cliff at exactly 8 o'clock. There—wheeling, swooping, circling, and diving—they utered strange unmusical cries, as though rejoicing to be home again. The return of the Mutton-Birds had begun. For some time they came in singly—here a bird and there a bird. Gradually their numbers increased until the sky was covered with them. Swiftly they hurtled in from the sea, by tens, by twenties, by hundreds, by thousands; but not to land at once. There seemed a spirit of unrest about the birds, as if, having reached their objective after long wandering, they were too overjoyed to be still, but must be darting and poising, rushing and gliding, wheeling and circling, all the time screaming discordantly till the semi-darkness was filled with their cries. Now distant against the sky, now lost in the darkness of the land, the birds might be thought to have no aim in their manœuvres, but closer watching showed that each was most nearly touching the earth at one particular breeding burrow. At first the velocity with which the spot was traversed scarcely indicated any desire to land, but after many gradually narrowing loops had been described, there came a time when the speed decreased, and the wings flickered somewhat. On the next circle the bird poised, and then alighted as softly as snow at the very mouth of the burrow—not even then to rest until darkness was complete. Cape Woolamai was as busy as a bargain sale, new arrivals running hither and thither, inspecting, rejecting, visiting, courting, fighting, and singing their deep sea chanty. By half-past 8 it seemed that fully 100 acres of the cape was a mass of excited birds. Angry squawks here and there denoted that fights were in progress in some of the burrows. Now and then a bird could be seen hastily emerging, while his successful rival screamed with harsh triumph. Similar scenes had been enacted simultaneously on a dozen minor rookeries around the island. Altogether they represented a line of breeding burrows six and a half miles long, and the birds must be numbered in millions. The birds, which have come in from the sea to breed, will remain until late in April. During all this time similar stirring fights may be witnessed every night. Silence at last returned; birds which had found no burrows, or had been ejected from those which they considered theirs, were walking awkwardly up and down, muttering in what might be taken to be sullen resentment. At the mouth of one burrow one unmistakably proud householder was sending forth to the skies an unmusical pæan of sheer delight. So another great problem has been solved. For the past week everywhere one has gone on this pleasant island one has been informed that the Mutton-Birds return to the day, to the hour, to the minute, each year; on that, all those who are not hopeless disbelievers in the Mutton-Birds legend have agreed. The only point has been that nearly everyone has named a different day, a different hour, a different minute. Let all doubts be resolved. The Mutton-Birds returned to Phillip Island at 8 o'clock on November 23. Those few who named this date and time are entitled to the respect which they will receive.

Bird Protection

CENTRAL QUEENSLAND NATIVE BIRDS' PROTECTION ASSOCIATION.

The annual meeting of the association was held at Rockhampton on January 29, 1925. In moving the adoption of the annual report and balance sheet, the President, Mr. A. Boldemann, stated that "during 1924 the association had fewer complaints regarding breaches of the act than in any previous year. That being so, it was right to conclude that the association must be doing good. A few prosecutions and heavy fines had had the desired effect. The police should carry out this work," continued the speaker, "it is their work, not that of the association, but as they do not carry it out to our liking, we undertake it on our own behalf."

The following extracts from the annual report of the association are of general interest, and show what valuable work the association performs:—

During the year an attempt was made by Townsville sportsmen to open the shooting season a month earlier in No. 2 district, namely, June 1st. A special meeting of your association was held for the purpose of opposing the proposal, and a motion was passed, asking the Minister to stand firm against including June in the shooting.

It was considered that opening a month earlier meant the slaughter of thousands of ducklings and flappers. At this meeting a further request was made to the Minister for Agriculture to add an extra month on to the breeding season by commencing it on December 1st, this making seven months close and five months open. Eventually an Order-in-Council was issued agreeing to the proposal. The breeding season now operates from the first day of December to the thirtieth day of June in each year, inclusive, and we are pleased to be able to say that the majority of sporting men are in sympathy with the change, and gave your committee much valuable assistance towards bringing it about.

Your committee had occasion during the year to institute proceedings against the Rockhampton Fresh Food Supply Co., and obtained a conviction for unlawfully carrying on the business of buying and selling native birds without first having obtained a license or permit to do so. Your committee was successful in another case against a young man for unlawfully killing a totally protected bird, namely, a "Pee-wit," or Magpie Lark. In connection with these prosecutions we are very dissatisfied with the light view taken of the offences by the local police magistrate, for in both cases the offenders were let off practically without any punishment. In the latter case it might be stated that, after getting a conviction, your association was amazed at being called upon to pay its own professional costs, and had even great difficulty to obtain witnesses' expenses in the case. The bird that was destroyed is exclusively insectivorous, and is one of the most valuable species to the man on the land, and it is the greatest folly for anyone to destroy such useful birds. Our magistrates should wake up to the fact that bird life so essential to farmers and orchardists is becoming scarcer, and in offences of this kind, where the Act is broken with impunity, they should impose substantial penalties on the offenders.

We find that the biggest offender is the junior who, with his pea rifle and catapult and egg collecting mania, wrecks infinitely more bird life than anything else that we know of. It is sincerely hoped that the honorary work which your association is performing in Central Queensland will in future get better recognition in the Court when it has occasion to go there in defence of bird protection.

You will be pleased to hear in regard to your Committee's recommendations to the Home Secretary's Department asking that suppressive measures be prepared and passed in connection with the pea rifle menace, that a Bill to "Regulate the sale and use of Firearms and to guard against the careless use thereof" is to be submitted to Parliament at its next session.

The need for sanctuaries in the preservation of bird life is now well recognised throughout Australia, and you will be glad to know that an extra reserve has been recently proclaimed under the Act for No. 2 district.

For the guidance of the public your committee during the year had published in the local dailies a list of birds that are partly and permanently protected throughout Queensland, and the usual notices of warning against committing breaches was also inserted in the local press, and notice boards have had the usual attention.

It was pleasing to note that our bird reserves or sanctuaries were respected during the year, and very little, if any, illegal shooting was done on them.

The opening of the duck season was, unfortunately for some, very disappointing. Throughout the whole of the shooting season the absence of waterfowl on our swamps and lagoons was very pronounced. The unusually good rainfall throughout Queensland had a lot to do with this shortage.

Reports show that the birds never left their haunts in the north-west and the far outback blocks. The food and water supplies being plentiful in these parts, the birds settled down to breeding, and so remained away from our district.

GREBE PLUMAGE.

Mr. H. S. Gladstone and Mr. P. R. Lowe, International Committee for the Protection of Birds (British Section), write:—

The attention of this committee has been drawn to the recent slaughter and attempted import of Grebes for the purpose of reviving the Victorian fashion in the plumage of these birds. Under the circumstances you will perhaps permit us to give the public some information about this violation of the Plumage Act.

Towards the end of last summer notices appeared in various trade and fashion papers advertising an autumn boom in Grebe plumage. This was followed by a display of Grebe muffs, ties, and trimmings in various furriers' and drapers' establishments. As a result of a single seizure by His Majesty's Customs, nearly 136,000 (135,956) Grebe skins were confiscated and eventually destroyed. These skins, which were identified by a member of our committee, consisted of three species—namely, the Great Crested, the Red-necked, and the Black-necked Grebes. Except for the heads, legs, and feet, the entire skins were present, and the birds had been killed in full breeding plumage. The plumage was, of course, in the most perfect condition; and it seems scarcely credible that so many of these fine, handsome birds could possibly have been collected in any European country for import into these islands; yet it is certain that the pitiless and wholesale slaughter represented by this one importation was but a fraction of what has actually taken place to supply other markets on the Continent.

The obvious inference from this most discreditable importation is that the sudden fashion advertised in Grebe plumage was one dictated by a trade interest, and was in no way a response to any demand by the public. We confidently entreat all British women to avoid the purchase of Grebe plumage in any form whatsoever, and we appeal to our leading firms (who have no doubt been misled in this matter) to prevent any further display for sale now that the facts have been revealed to them and the public.—(From the London *Times*, Nov. 27, 1924.)

Reviews

The Lyre-birds of Mount Buffalo.

Under this title Messrs. Robertson and Mullens, of Melbourne, have published a series of photographs of Lyre-Birds, including the male, female, nest and chick, taken by "Guide Alice," with an introduction by Charles Barrett, and brief notes detailing the circumstances under which the pictures were obtained. It appears that "Guide Alice" failed to secure photographs by hiding near the nest, so, morning and evening on several successive days, she sat on a rock, in full view, and accustomed the wary birds to her presence; and always she mimicked the mournful notes of the Boobook Owl—"Mo-poke." The female at length ventured near her, trying to say "Mo-poke" herself, and her picture was secured. One morning, when the chick was about a month old, it was taken from its nursery, and the mother bird sounded an alarm. The male bird responded, came within camera range, and his portrait was added to the series.

All Australian bird-lovers should add this little book to their libraries.—W.B.A.

Bibliography of the Writings of the late Count Salvadori.

In the *Rivista Italiana di Ornitolagia* for June, 1924, Count E. Arrigoni degli Oddi publishes a brief account of the life of the late Count Tommaso Salvadori, accompanied by a valuable list of his published original papers, numbering 338, and almost all dealing with ornithology. Salvadori described 27 new genera and 490 new species, lists of which are given. A large proportion of the new species were from the Papuan and Malayan regions, and the following Australian birds were described by him: *Monarcha canescens, Ninox peninsularis, Pitta kreffti, Platycercus erythropeplus, P. xanthogenys.* The validity of all of these species is still doubtful. He introduced new generic names for two Australian birds: *Histriophaps* for *Columba histrionica,* and *Neophema* for *Euphema bourkii.*

Salvadori wrote three of the volumes of the *Catalogue of Birds in the British Museum*: No. 18, *Psittaci,* or Parrots, 1891; No. 15, *Columbae,* or Pigeons, 1893; and No. 19, dealing with the *Chenomorphae* (Flamingoes and Ducks), *Crypturi* (Tinamous), and *Ratitae* (Emus, Kiwis, etc.), 1895. His other important works included: "*A Catalogue of the Birds of Sardinia,* 1864; *The Fauna of Italy,* Part 2, Birds," 1871-2; *Catalogue of the Birds af Borneo,* 1874; *Prodromus of the Ornithalogy of Papua and the Moluccas,* 1876-1883; *Catalogue of the Birds of the Kei Is.,* 1879; *Ornithology of Papua and the Moluccas,* 1879-1883; with Supplements, 1889-1891; "Genera Avium Families, *Stringopidae, Nestoridae* and *Caeatuidae,*" 1905; "Families *Loriidae* and *Cyclopsittacidae,*" 1910.

His great work on the Birds of the Papuan region will long cause his name to be remembered by Australasian ornithologists. —W.B.A.

Obituary

MRS. A. NORTON, R.A.O.U.

Mrs. A. Norton (*née* Sybil Wright) died at Tamworth, N.S.W., on December 17, 1924, after an operation. All members of the Union who were acquainted with the deceased lady will sympathise deeply with her husband and relatives in their untimely loss. The late Mrs. Norton was a keen lover and student of bird life, and did much in an unobtrusive way for the protection of the birds in the district near her home. She was content to observe the habits of the birds in their daily life, and during the last years of her life, when in poor health, she derived great pleasure from watching the birds around her.

In October, 1921, Mrs. Norton, with her sister, Miss Wright, took part in the R.A.O.U. Camp at Wallis Lake, and she contributed a paper entitled "Bird Notes from Boree (New England

Plateau)" to the *Emu*, Vol. 22, page 39. She also contributed some shorter notes, and, if her life had been spared, would undoubtedly have published more of her observations.

The following extracts from the last letter received from her by the writer, dated October 27, 1924, seem worthy of permanent record in the *Emu*.

"About three weeks ago I had quite an interesting afternoon in the country about 20 miles in a south-westerly direction from Tamworth. We spent our day on a hillside covered with big, old, dead timber with young vigorous sapling trees growing up through it. There were numbers of birds about, flocks of little Spotted-sided Finches, Tits and White-faces, Caterpillar-eaters, Pardalotes (that say 'chip-chip'), Magpie-Larks, Red-backed Parrots, Rosellas, White-plumed and Lunulated Honeyeaters—all our ordinary birds, in fact. But what I was most interested in were a pair of Hooded Robins and the Rufous Song-Larks. There were, I am sure, dozens of the latter, flying in their rather clumsy way from tree to tree and singing incessantly. I was able to study them better than I have ever been able to do before, and made the discovery that they have two entirely different songs—a 'flying' song and a 'sitting' song! They kept entirely to the dead trees and almost altogether to the topmost branches. I did not see one descend to the ground, though once or twice they alighted on logs. They kept flying from one tree to another, and whilst they flew invariably sang the ordinary, *forced* kind of song that we know so well. But the very instant that they lit on a bough that song ceased, as though cut off by a knife, and the bird sat rather hunched up and clumsily (something like a cuckoo). If it sat for some time it would presently begin to quiver and shake all over (as if making a great effort) and to utter low trilling notes, then would break into a beautiful, full, mellow, musical run of notes not in the least like the 'flying' song. I have often wondered why the Bird-book calls their song 'one of the richest and sweetest of Australian bird-songs.' I do not call the 'flying' song either rich or sweet, but the 'sitting' song could be so described. I am thinking of writing a note to the *Emu* about it." . . . "There was a curious rocky knob near where we were, and I climbed up it. I don't know what the rocks are, but they are bright red and piled up into a great cairn. It is covered all over with a thick low growth of some mimosa-like shrub, covered with clematis vines. I thought I might find some fresh birds there, but only saw some Gerygones and a family of ordinary Blue Wrens. These were, however, interesting in that *two* little blue males and one female were busy feeding three little babies in a low bush. I have heard of a bachelor-uncle Wren (so to speak) lending a hand to bring up the children, but had not seen it before for myself. By squeaking, as I sat quietly under a big, red boulder, I brought both papa and uncle fussing round my feet within a foot or two."—W.B.A.

Notes and Comments

The article on the bird life of Coomooboolaroo Station, by Mr. C. A. Barnard, which we publish in this number, is probably one of the most valuable papers ever contributed to the *Emu*. Mr. Barnard has been observing the birds in his locality for 50 years, and the locality is so far from large centres of population that the changes that he has observed in the numbers of various species cannot be attributed directly to interference by man. Indirectly, however, human occupation has brought about great changes, principally through the stocking of the country with cattle, which, especially in dry seasons, denude the country of grass, thus depriving seed-eating birds of food and terrestrial species of shelter. The disappearance of almost all permanent waterholes in the creeks is probably also due to cattle, which, by constantly trampling about their margins, keep them in a muddy condition, and thus cause them to silt up.

Mr. Barnard read a paper detailing the more striking changes he had observed, at the recent Rockhampton Conference, where it aroused great interest and led to a valuable discussion. At our request he and his brother, Mr. H. G. Barnard, kindly added many additional notes, so that the paper now pub'ished contains a complete account of all the birds observed by them in the district during the past 50 years.

NAT. HIST. LIBY MELBOURNE

The New Zealand Government has appointed Mr. A. S. Wilkinson custodian of Kapiti Island Bird Sanctuary.

Mr. C. Barrett has been appointed a member of the R.A.O.U. Committee on Reservations and Minimising Danger from Fires as representative of Victoria.

Members of the R.A.O.U. have always been proud of the fact that the *Emu* was the best illustrated journal issued by any Ornithologists' Union in the world. If this superiority is to be maintained it can only be through the assistance of those members who are photographers. No doubt many of our readers have good photographs of birds which have not been published in the *Emu* because they were not required to illustrate articles by the photographers. In many cases, however, they would be valuable to illustrate articles by other members who happened to be writing about the species in question.

We would appeal to bird-photographers to send us prints of any good photographs they may obtain of species on which they do not intend to write articles themselves, so that we may build up a stock of photos. to be drawn upon as occasion offers to illustrate papers in this journal.

All communications in connection with the *Emu*, and articles or photos. for publication should be addressed to the Editor at Sherwood, near Brisbane, not to the official address of the Union.

The date of publication was 8th May, 1925.